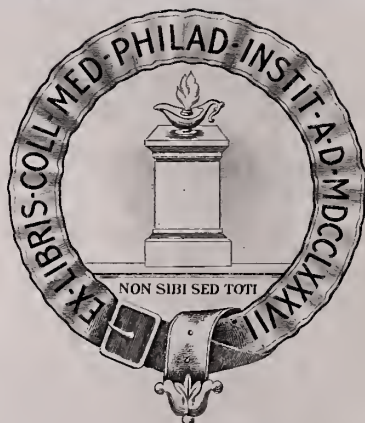


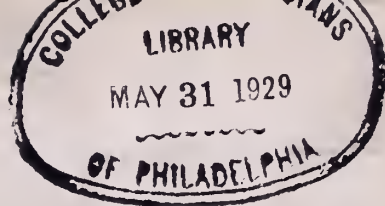
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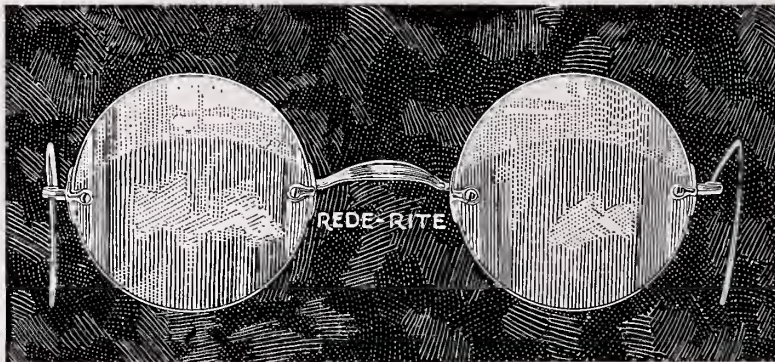
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No. 1

THE RESPONSIBILITY OF OPHTHALMOLOGISTS AND OTOLARYNGOLOGISTS FOR THE CONSERVATION OF PUBLIC HEALTH*

J. A. STUCKY, M.D., Lexington, Ky.

MEDICAL science has grown and of necessity has been rewritten in the past twenty-five years. To my knowledge this is not true of any other profession. The early men were ambassadors to the sick, whereas in the present day we are more the apostles of prevention of disease.

There is no career so high in its ideals, and few professions that require such preliminary training as does the medical profession. The specialty of ophthalmology and otolaryngology is not an adjunct or appendix of the medical profession but a real and most important part of it.

Anything that impairs or destroys human efficiency is vital to public health. The power of the people is dependent on their health, mental and moral strength. The research and laboratory workers aided by clinicians have isolated the specific causes of some of the major infectious diseases of the eye and throat and these are now readily recognized and specific remedies used to prevent destruction of sight and life.

There are still many unsolved problems in ophthalmology, among which are the causes of opacities of the lens (cataract),

coloboma, retina glioma, melano-sarcoma, glaucoma, trachoma, etc.

"Unfortunately we have no dependable statistics for the causes of blindness, except in a few states, but the Federal Census figures for 40,913 cases of blind include the following—1,932 cases glaucoma, 4½% plus; 4,896 cases of cataract, 11%; 1,198 cases of ophthalmia neonatorum, 2% plus; 555 cases of trachoma, 1% plus. Glaucoma is practically as prevalent in one state as another, and probably more cases of this would be missed in the Federal Census than other diseases, as it so often affects the well-to-do, with concealment of the cause of blindness from the census enumerator. It is estimated, however, that somewhere between three and five per cent of all blindness in this country is due to infections acquired at birth and that perhaps as much as fifteen per cent is due to syphilis."

Otosclerosis is now receiving the attention it deserves from a clinico-pathological standpoint and in a short time I feel we may expect something definite to report on this serious trouble. In most of the acute and chronic suppurative troubles of the middle ear and mastoid cells, the etiology, diagnosis and treatment is well understood and satisfactorily controlled. The modern mastoid operation has undoubtedly prevented

*Read before the Eye, Ear, Nose and Throat Section of the Tennessee State Medical Association, Jackson, Tennessee, April 8, 1929.

ed many cases of intra-cranial diseases and permanently impaired hearing. The public now believes that what the appendix is to the abdomen the mastoid process is to the cranial cavity. The etiology of atrophic rhinitis, naso-pharyngeal fibroma, exostoses, enchondroma and papilloma with malignant neoplasms is still an open question. The cause of large tonsils and adenoids is still a much discussed problem.

³McAuliffe says, "The search for focal infections as the cause of toxic inflammations of the joints, heart, eye and other organs has singled out the tonsils next to the teeth as the easiest found focus and a wholesale attack on the tonsils has resulted in indiscriminate operations in all ages from infancy to old age. Internists have been responsible for this as much as the specialists and the laity has been educated to believe that the tonsils are unnecessary and harmful structures. This opinion has been supported by the fact that many patients show no untoward systemic results of tonsillectomy, but feel apparently better without them. The cry is always that the tonsils are diseased, but on what proof this is based is not entirely obvious.

If tonsils become diseased is it not more likely that they would become more so in late age than in infancy? Yet it is mainly the young who have the operation, and the aged are left alone.

We see throat after throat present an aspect which would lead one to think that the operations were blindly done. Throats with pillars gone, especially the posterior, faucial opening distorted by cicatricial contraction, some with bits of tonsillar tissue still flourishing, some with the lingual end growing up into the fossa, looking as if the tonsil were half exsected. Throats such as these have perhaps had two or three operations to get rid of all the lymphoid material, and yet have sore throats, without tonsils. Some throats have no tonsils but one or two crypts, going into the constrictors, the seat occasionally of severe streptococcic infections.

These results have developed an internecine war between specialists, and no tonsillectomist is free from criticism. I doubt

if any operator has escaped censure in his tonsil work. Nowhere in the medical field is there more criticism than in tonsil operations, a criticism which comes from men who have the same results as those they criticise. If all tonsils were of the firm globular type and nicely encapsulated, this would not obtain, but unfortunately the majority are of the discrete type with fingers reaching into the constrictor muscles, perhaps joined by a lymphoid bridge to the lingual masses."

In too many of these diseases for which we are consulted we are only treating end results knowing little or nothing of the cause, and doing nothing to wipe it out, thus preventing the disease. I believe the majority of these conditions are of systemic origin and the treatment must be from within out and not entirely by external applications.

⁴"A recent survey of 27,000 cases of sickness in rural New York, results in the following: 28% attributed to bad colds, 14.6% due to digestive disorders, 13.7% surgical cases, and more than half of all the sickness listed was under these three heads, at least 22.97% being sick through the winter months, the least number being sick through autumn, and always more females than males."

It is daily being demonstrated in the laboratory by research workers, also by clinicians and internists, that "diet is the most important factor in establishing bodily resistance to disease. Well-nourished, physically efficient persons are seldom sick except from epidemic disease and then it is of short duration and the disease is usually mild."

⁵Epstein reports (1925) a number of cases of severe bleeding following tooth extraction, the condition being due to the fact that the patients had been living on a faulty diet for several years.

⁶Weston says, "Dietary deficiency which is sufficient to interfere with normal growth and development reacts unfavorably, often destructively, upon the organs of special sense." We spend days and weeks removing conditions and effects, investing large sums in expensive equipment for their

treatment, but what are we doing to prevent them? Unfortunately with many of our profession, the establishments of the cause of any disease is of less practical moment than the discovery of some adequate treatment, though the finding of the cause, of course, usually precedes the working out of a reliable method of treatment. However, there is a Macedonian cry coming up from the public urging that they be told what to do to prevent the diseases which are so hard to cure once they have manifested themselves.

It is a common observation that many individuals plainly harbor foci of infection yet exhibit no discoverable evidence of disease. This tolerance is mystically ascribed to "immunity," which has not been explained, nor has it yet been determined, in any patient just when this resistance is about to be diminished or lost, or whether it will continue permanently unimpaired and why.

The public, the main beneficiary, is becoming wide awake and giving attention to the possibilities of improved health service and are beginning to realize that our universities are in need of permanent resources for the furtherance of research. The opportunities for disinterested public service for the betterment of health is exceptional.

Two questions might be asked, first, how much sickness and disease is preventable or avoidable; second, is sickness something which comes to us, a condition engendered within us or a physical and mental state which obtains within us, for which we are ourselves responsible? It seems we have been rather stupid in allowing people to wait until they are actually sick and in many cases irreparable damage done instead of taking measures to prevent the condition.

Of course this will necessitate a rather altruistic attitude of mind, but this attitude is supposed to exist in the medical profession. It looks at first glance as if we were cutting away the very ground from beneath our feet, but this is far from true. There will be quite as much and infinitely more interesting work on preventive lines

than there is now in the methods of treatment employed in curing disease and particularly those of a surgical nature.

I take the liberty of quoting from a personal letter received from one of our internationally known oculists, whom I consulted about this topic, telling him some of the things that had been told me regarding the relation of the ophthalmologist and otolaryngologist to the public health work.

"The point to which you refer as to the likelihood of preventive measures limiting ophthalmic practice, I have myself often considered and I am growing to believe that the fear that that may be so is one of the most important elements in preventing the enthusiasm which would otherwise be expected from our ophthalmic practitioners.

"It is a fact that the most active in preventive work are those who have fixed salaries from organizations and not those who are in private practice. My own belief is that while medicine is undergoing radical changes for which there must be readjustment the opening up of broader preventive avenues will make new and more worthwhile work for the men engaged in ophthalmic practice. The subject is worthy of thoughtful consideration because it necessitates an explanatory campaign. We should have been in the vanguard as advisers to the public health service."

My contention is that we can aid the research worker by an intensive clinical study of our cases. How many of us now, study our cases from more than the angles of SYMPTOMS and SHADOWS?

The chief requirement of a standard of living is life, and the prime essential of life is health. Health is dependent on nutrition and growth. Consider the great number of children that die between the ages of two and ten years because undernourished. Our business and profession is for the health of others as well as our own health, and the only poverty odious to face is the poverty of life.

"We are beginning to realize how much disease is preventable. We are beginning to discover promptly the incidence of maladies in the patient and exemplify the ideal of

health service—to keep people well—manifesting real concern about the prevention of sickness and giving advisory health service when our patients are not sick.

In a general way the efforts of public health officers and various other agencies are analogous to similar activity, for the control of communicable disease, but the psychological features and also the social and economic relationships will be more effectively developed by a broader preparatory education, and education of the masses.

To offer in four years a course in medicine that shall teach the fundamental sciences and upon this foundation give the student a sound training in the general practice of medicine and surgery, at the same time preparing a certain proportion of the students for various specialties in medicine and surgery is fast becoming an impossible task.

The first and fundamental step is an integration of the medical course of study in such a fashion that the so-called fundamental studies shall become a part of the course in medical theory and practice. A large amount of time is consumed in teaching the redundant details of anatomy, physiology and chemistry which students and teachers quickly forget. These details should come to the medical student as matters of illustration and experience in the course of medical study. It is a problem of education and not medicine, but it is the most important problem confronting the modern medical school. The spirit of enquiry should animate the teaching of medicine and should be exemplified in the service of the practitioner.

There is a strong growing discontent with the mercenary organized medicine and a tendency to reduce the professionally unfit, thus heightening the respect of the practitioner, and stimulating the growth of ideals of service. This is being evidenced by the requirements of the National Boards of Ophthalmology and Otolaryngology before they will issue a certificate to practice the specialty, and it is a great step forward in organizing, unifying and establishing the specialties. It is important that the public

as well as the medical profession be informed of the demands we make upon ourselves in the interest of improving our work. Specialties and specialists have come into their own, but it is our duty as individual members to make them what they should be.

Personally, I get more genuine satisfaction in preventing end results, by removal of the cause and in so doing building up a stronger, healthier and more efficient body, less susceptible to disease. I would not place less emphasis on hygienic and sanitary living, but decidedly more emphasis on necessary nutrition.

My clinical observations began with an isolated, partially hidden people—so remote from medical centers and transportation, that their deplorable diseased conditions had to be met, with ways and means available, or carried to them by piecemeal at long intervals. The changed conditions as the result of improved nutrition and hygienic living, the rapid decrease in destructive eye, ear, nose and throat as well as mouth conditions, justifies the confidence and enthusiasm with which I present this topic for your consideration. In a future paper I shall present my clinical observations of the near-solution of some of the unsolved problems of ophthalmology and otolaryngology already referred to.

Summary: My desire has been to present this topic for thoughtful consideration in a brief epigrammatic way from the viewpoint of (a) unsolved problems of ophthalmology and otolaryngology, (b) suggestions for more careful clinical study of individual cases, (c) consideration of our system of medical education—is it the most effective and practical for the practice of the science and art of medicine, (d) appreciation of our responsibility for the conservation of public health.

The unknown etiology of diseases confronting the ophthalmologist and otolaryngologist is a challenge to us, until their causes and prevention are known.

The increasingly large number in attendance at our public health clinics, the great financial cost of equipment and mainte-

nance of these clinics, with the impaired or destroyed efficiency of those treated, and the time and labor given by the ophthalmologists and otolaryngologists, intensifies the challenge and magnifies our responsibility for the conservation of public health.

Shall we make of the specialty of ophthalmology and otolaryngology a real health service, by learning the cause and prevention of the diseases we now treat, or shall we continue to be content to treat defects and end results by mechanical and local methods rather than in accordance with our newer knowledge which makes of us really scientific practitioners?

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NEURO-VASCULAR LESIONS OF THE EXTREMITIES*

LYLE B. WEST, M.D., Chattanooga

BECAUSE gangrene is so often caused by occlusion of the main nutrient vessels, and because the recognition of such occlusion is necessary for an accurate diagnosis, it may not be amiss to briefly review here the anatomy of arteries of the extremities.

The axillary artery may be palpated against the humerus in the lower or third portion of the artery, just within the edge of the coraco-brachialis and biceps and just below the pectoralis minor. The brachial may be compressed against the inner side of the humerus in its upper two-thirds. The ulnar artery may be palpated just above the annular ligament as it lies on the flexor profundus digitorum. The radial artery is only palpable in its lower portion between the tendon of the brachio-radialis and the flexor carpi radialis. This pulsation may be small or absent when the radial passes to the dorsal surface higher up, in which case the superficial volar branch takes the usual position of the anomalous radial.

In the lower extremity the femoral artery is best felt just below the edge of Poupart's ligament, where it can be pressed against the grim of the pelvis just external to the ilio-pectineal eminence. The popliteal artery is palpable with the patient prone and the leg flexed at right angle to the thigh. In this position the popliteal is felt in the upper portion of the popliteal space just mesial to the center of the space, just as the artery emerges from under the semimembranosus muscle. In very fat patients the popliteal artery may not be palpable, but its pulsation may be elicited by having the patient cross his legs and noting the impulse of the crossed foot. The posterior tibial is deeply situated and is only palpable behind the internal malleolus as it passes down between the flexor longus digitorum

and the tibialis posticus tendons. The anterior tibial artery lies deep on the interosseous membrane and is not palpable for clinical use, but its continuation, the dorsalis pedis, is palpable just lateral to the extensor longus hallucis tendon in the proximal portion of the first metatarsal space.

The profunda femoris anastomoses with the pelvic gluteals and the sciatic arteries. This explains the fact that occlusion below the profunda is more dangerous than occlusion above its origin. The same is true of the shoulder region, where, due to anastomoses it is less dangerous to ligate the axillary artery above the circumflex arteries than below them.

COLLATERAL CIRCULATION

When a main artery is ligated or occluded, the collateral vessels return the blood stream to the main channel below the point of occlusion. Due to such necessity the small vessels dilate and growth occurs, so that they soon become large, having thick walls. As a rule, collateral circulation is more readily established in muscle tissue than in tendinous regions, due to the greater number of vessels. This explains the almost certain gangrene which follows ligation of the popliteal, unless of course the occlusion is very gradual.

Compression of the femoral artery of a normal person for 3-5 minutes causes blanching of the foot. This is not true of a diseased one which has an increased collateral circulation.

After occlusion of the femoral artery the circulation is carried on collaterally by the inferior gluteal branches to the sciatic nerve. These branches are usually very small, in fact, they do not require ligation in the usual amputation. However, when the occasion arises they not only increase in calibre but also in number. It is a rather interesting fact that whatever the disease process which has affected the main

*Read before the Chattanooga and Hamilton County Medical Society and the East Tennessee Medical Association.

arterial channels may be, the sciatic vessels are not similarly involved. Thrombosis of sciatic vessels has not been found in autopsy specimens.

IMPENDING GANGRENE

Gangrene is imminent when some or all of the following are present: the presence of redness or cyanosis when the limb is pend-ent, ischemia on elevation, absence of arterial pulsations, migrating phlebitis, trophic disorders of the skin or nails, and lastly, the information obtained from the determination of the "angle of circulatory sufficiency." The normal leg when the patient is recumbent and the leg flexed to the perpendicular (180°) retains most of its color, while a diseased one will not. Lowering the diseased limb gradually until its reddish hue returns gives the angle of circulatory sufficiency, i. e., it is the angle of the projected plane of the trunk and the leg at that elevation at which a reddish hue returns. In advanced vascular disease the leg may have to be lowered to the horizontal (90°) before color returns. In such case there is a grave prognosis.

THROMBO-ANGIITIS OBLITERANS

(Presenile Gangrene or Buerger's Disease)

When the patient with thrombo-angiitis obliterans seeks medical aid he is no longer suffering from the acute stage of the disease itself, but from the disastrous occlusive thrombosis which signalizes Nature's method of healing a vascular lesion. It is a contest between the collateral circulation and the thrombotic process.

Thrombo-angiitis obliterans at the onset is essentially an inflammatory process, involving particularly the large, deeply seated arteries of the legs or arms. Almost immediately there follows an extensive occlusive thrombosis, which subsequently heals or organizes and finally becomes canalized, the fibrous cord resulting holds the accompanying nerve, and it is this that causes the unbearable pain.

The symptoms of the acute stage are: lancinating pains in the leg and foot, tenderness in the calf and along the anterior

tibial region, and cramp-like pains which interfere with walking. This last symptom was described by Charcot in 1858 and designated, "intermittent claudication." Charcot cites similar symptoms described and observed in horses. Charcot's patient was a man of 54 years and it is rather interesting that the cause of his symptoms, as revealed at autopsy, was an aneurism of the right iliac artery with obliteration of the distal portion, which followed a bullet wound received 21 years before.

Buerger in 1908 described the pathology of this disease and separated it clinically from endarteritis obliterans and arteriosclerosis. At this time he proposed the name "thrombo-angiitis obliterans," and it is now quite universally used. To quote Buerger, "In a young Hebrew, especially of Russian or Polish origin, any persistent discomfort in the foot or leg deserves a careful investigation as to the integrity of the arteries of the limb."

Although thrombo-angiitis obliterans usually affects the lower extremity, yet at times it may involve the upper extremity.

The characteristics of thrombo-angiitis obliterans are as follows: its racial and sex predilection (Jews), early involvement of the lower extremity, early symptoms of pain or intermittent claudication, presence of migrating phlebitis, evidence of pulseless vessels, blanching of the extremity on elevation, rubor in the pendent position, relation of the hyperemic phenomena to posture and temperature, absence of simultaneous symmetrical involvement, and a slow progressive course ending in gangrene.

The etiology of thrombo-angiitis obliterans is not clear. The disease usually occurs in the robust, without evidence of syphilis, diabetes, nephritis, or heart disease. Jews and Asiatics form the vast majority of cases. The blood pressure is usually low. In one series of 500 cases there were only three women, and only four were not Jews. Tobacco smoking seems to be a factor in the production of the disease, not the entire cause, but the final factor in those perhaps predisposed to vascular disease or with susceptibility to tobacco poi-

sons. In one series of 84 cases all were habitual smokers.

TREATMENT OF THROMBO-ANGIITIS OBLITERANS

There are many treatments of thrombo-angiitis obliterans, and a new one comes out every few weeks, by their very number they are admitted failures. The following have been used with little or no permanent benefit: Koga of Japan used subcutaneous Ringer's solution, Schlesinger of Germany injected sodium nitrite subcutaneously. In France the Leriche operation or femoral sympathectomy promised much but has been a failure, because, as shown by Potts, the sympathetic supply of the femoral comes off at different levels and not through a continuous nerve along the vessel. Insulin, and an anti-diabetic diet, lumbar ramisection, deep X-ray therapy, ligation of the main arterial supply, sodium citrate intravenously, suprarenalectomy, 8-10 quarts of Ringer's solution daily by way of the duodenal tube, intravenous hypertonic saline solution, baking, Bier's hyperemia, hydrotherapy, lights, diathermy, arteriovenous anastomosis.

However, after any or all of these the miserable patient will cry for amputation to relieve the intolerable burning pain, even when no gangrene is present.

In the records of Mt. Sinai Hospital of New York, 77 per cent of the cases of thrombo-angiitis obliterans had amputations within five years of the onset.

Using intravenous hypertonic salt solution in one series of 84 cases during a period of four years, amputation was necessary in only 10 patients or 12 per cent and five of these had gangrenous toes before treatment was begun, and the other five afterwards admitted that they had not stopped smoking. All treatments fail when the patients continue to smoke, and all improve when they stop.

Hence we see that the only efficacious treatment is prophylaxis. Excessive exercise, exposure, certain foods, and tobacco must be avoided. Buerger uses a postural treatment, a cycle composed of: elevation

until the limb is blanched, then below the horizontal until it is red, back to the horizontal; this is repeated over and over. He also uses intravenous solutions to diminish the viscosity of the blood, this is based on the fact that the blood has an internal friction four to five times greater than distilled water, and hence with a diminished viscosity the heart will deliver a greater quantity of blood to the part with the same blood pressure. Intermittent compression of the main arteries will hasten the formation of the collateral circulation.

DIFFERENTIAL DIAGNOSIS OF THROMBO- ANGIITIS OBLITERANS

Thrombo-angiitis must be differentiated from the following: gangrene due to trauma, long intense cold, embolic gangrene, arterio-sclerotic endarteritis in which the patient is usually over fifty, luetic endarteritis, periarteritis nodosa, which is of sudden onset with fever and a grave prognosis. Raynaud's disease has a rather sudden onset, local ischemia and syncope involving usually the finger, more rarely the toes and at times the ears and nose. The sensory manifestations are of short duration and there are remissions of the process, there is a symmetrical involvement and an absence of arterial occlusion between the attacks, also there is an atrophy of the distal phalanges as seen by the X-ray. Acrocyanosis is a progressive, slowly developing asphyxia of the ends of the extremities with local hypoesthesia, and is generally associated with pulmonary osteoarthropathy. Erythromelalgia is a chronic localized hyperemia with pain and swelling, but no blanching when the extremity is raised. Scleroderma and sclerodactyly are generally symmetrical, and are characterized by an atrophy and shortening of the distal phalanges and a contracture of the skin of the fingers.

RAYNAUD'S DISEASE

A. G. Maurice Raynaud in 1862 was the first to maintain that there could be gangrene without vascular occlusion.

Cassirir describes it thus: "Somewhere

in the peripheral portions of the body there occurs more or less severe pain, usually symmetrical, and not confined to any nerve distribution. The course is an intermittent one, there may be completely free intervals. The disease may consume itself in one attack, or there may be a succession of attacks. Objectively sensory disturbances are usually absent, also paralysis. However, other evidences of disturbed vasomotor innervation may occur, such as abdominal colic, aphasia, hemoglobinuria, and arthropathies."

Raynaud's disease usually affects neuropathic individuals. It is a rather rare disease, for instance, there were only five cases in 5,000 admissions to Oppenheim's Neurologic Clinic.

The disease is more frequently seen in women (62 per cent) between the ages of 18-30, and there is a distinct neurotic and sexual element. The thyroid and other organs of internal secretion are thought to have some influence. Shock and exposure to cold also have a part apparently. Those affected are subject to emotional outbursts, urticaria, polyuria, epilepsy, and chorea.

The etiology of Raynaud's disease is not known, the majority of authorities attributes it to a vasomotor spasm, others attribute it to affections of either the central or peripheral nervous system. Buerger thinks it an irritative and exhaustive process of the sympathetic nervous system.

Characteristic changes are seen by the X-ray in the distal phalanges of the hands, there is an atrophy with the disappearance of the tips of the first phalanges.

The treatment is most unsatisfactory. The first efforts should be toward the improvement of the neuropathic diathesis. The patient should avoid exposure, Galvanic baths give some relief, elevation of the parts also will give temporary relief. Adson of the Mayo Clinic, on the assumption that Raynaud's disease is a hypersensitivity of the vasoconstrictors, gave relief by doing a bilateral lumbar ramisection and ganglionectomy, also bilateral perivascular sympathectomy of the common iliacs.

SCLERODERMA

This disease may begin acutely in a day or weeks or it may take years to develop; in most cases there is no pain.

The symptomatology of scleroderma may be briefly divided into three stages: edematous, indurative, and atrophic. In the edematous stage one may find an entire extremity hard and edematous, or the process may involve one toe, one hand, or one eyelid, and may be continuous or transitory. In the second or indurative stage the skin becomes hard and tense, glistening, and having almost a varnished appearance. The skin becomes hard and when involving the face gives a mask-like appearance.

The atrophic stage follows this last, the skin is bound down and becomes even thinner than normal in spots, so that depressions are produced; these spots may be pigmented, or ulcerated and gangrenous. There may be both atrophy and hypertrophy of the terminal phalanges, and the bones of the arm. Frequently there are digestive disturbances, and at times an enlargement of the thyroid.

There are four theories of its pathogenesis: malfunction of the endocrine glands, infectious agents, vascular, and neurotic factors. The diagnosis is not difficult when the skin manifestations are developed. The prognosis is not grave but complete cure occurs in only 30 per cent of the cases. The treatment is improvement of the general health.

CHRONIC ACROASPHYXIA

This is a clinical syndrome of neurogenic variety, characterized by slow development of cyanosis or asphyxia of the terminal portions of the extremities. In many respects it is not unlike Raynaud's disease except that paroxysmal attacks are absent, and also pain is absent.

Acroasphyxia is not infrequently associated with acromegaly.

ERYTHROMELALGIA

Weir Mitchell in 1878 described an affection characterized by the paroxysmal occur-

rence of pain, redness and swelling of the feet, under the term erythromelalgia.

The pain is of a burning and sticking character which may become very severe. The pain is apparently caused by heat, exertion, and the pendent position of the feet.

Rubor and severe pain are the essentials of the diagnosis, due to the pendent position, the swelling is temporary and induced by posture.

The prognosis is dubious, complete cure is rare, but life is not endangered.

ACROPARESTHESIA

This affection, first designated acroparesthesia by Schulze, but previously described by Nothnagel, is characterized by the following: paresthesia, such as formication, numbness, pain of a tearing character, hyperesthesia, coldness and pallor.

The pathogenesis is assumed to be due to an abnormality of the nervous system in which it is unable to withstand deleterious factors.

The disease may last for months or years without serious consequences. Hydrotherapy is of some value, and tonics should be used.

ARTERIO-SCLEROSIS

In arterio-sclerosis, the most common of those included in such a description there is a proliferative change in the walls of the vessels which reduces the size of the lumen, and the elasticity of the wall is lost, finally there is noted an occlusion thrombosis.

The clinical manifestations of arterio-sclerosis of the lower extremity are as follows: intermittent claudication, absence of pulse, coldness, paresthesia, ischemia on elevation, chronic rubor, and ulcers follow slight exposure or trauma.

In diabetic gangrene the pathology is the same as in arterio-sclerotic gangrene.

The diagnosis of arterio-sclerotic changes and thrombo-angiitis obliterans in patients over fifty years of age is at times extremely difficult. Gangrene in thrombo-angiitis comes on more slowly, blanching and rubor are not so regularly present nor so marked in arterio-sclerosis. Migrating phlebitis is not seen in diabetic nor in ar-

terio-sclerotic gangrene, or its prior manifestations. Gangrene of the upper extremity is extremely rare in both diseases, but the racial predilection must be remembered in thrombo-angiitis obliterans.

The treatment of arterio-sclerosis is the avoidance of excessive exercise, exposure, tight shoes, and all trauma, however so slight, such as cutting the nails, corns, bunions, etc. The active treatment is the postural cycle to increase the blood supply, hot air, lamps, diathermy, after all these fail there is nothing left but amputation.

MISCELLANEOUS AFFECTIONS OF THE ARTERIES

1. Acute arteritis: this complicates the convalescence of most any infectious disease, it has been noted in the following: typhoid, influenza, cholera, typhus, scarlet fever, erysipelas, acute articular rheumatism, pneumonia, puerperal fever, and smallpox.

The manifestations may begin without apparent cause, but they usually follow some quick movement or exertion. There is sudden pain in the limb along the course of an artery, fever usually is present. The pulses below the occlusion are diminished or absent.

2. Tuberculosis of arteries: this occurs as a contiguous infection or as an embolic infection to some distant vessel. Periarteritis is found in the arteries of all tuberculous foci. The infection advances through the coat and finally the artery is converted into a fibrous cord. Tuberculous endarteritis is rare, though tubercles have been found in the walls of thrombosed vessels.

3. Syphilitic arteritis and phlebitis: gangrene due to this cause is rather rare and when present is usually due to the tertiary stage of the disease. The onset is slow, beginning with a heavy feeling in the legs, then follows intermittent claudication, and pain in the extremity along the course of the vessel.

4. Periarteritis nodosa: this is a rare disease, there have been only 52 cases reported in the literature. It is due to a necrosis of the media with the formation

of small aneurisms. These become thrombosed forming small nodules. Pain along the involved vessels is the principal symptom.

5. Mal perforant: This disease was first described by Nélaton in 1852. It is usually seen in males over forty years of age, in laboring classes. It is usually seen on the sole of the foot, and especially in the weight-bearing areas. Four theories have been advanced regarding its etiology; mechanical, vascular, neurogenic, and osteopathic.

At one of the weight-bearing areas there is a callus, the central portion of this callus becomes thin and finally breaks to discharge a secretion, the resulting does not heal, but slowly enlarges. As a rule the ulcer is painless. Treatment is toward building up the general health of the patient, and the usual surgical care of the ulcer. X-ray pictures of the foot may show involvement of contiguous joints with some bone destruction.

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MALIGNANT GROWTHS OF THE COLON*

W. D. HAGGARD, M.D., F.A.C.S., AND W. O. FLOYD, B.S., M.D., F.A.C.S., Nashville

MALIGNANT growths of the colon are practically always carcinomatous. Sarcoma of the colon is extremely rare and has not been encountered in our experience. Sarcoma of the small intestine has been encountered in one case where forty-two inches were resected and a 17-year cure resulted. Carcinoma of the small intestine is very rare. Carcinoma of the colon is seventeen times as frequent as carcinoma of the small intestine. Carcinoma of the small intestine, when it does occur, is usually metastatic from some other organ, although we have had one primary carcinoma of the small intestine situated in the terminal ileum, in a man of 65, with resection of eight inches, with arrest for over three years.

Carcinoma of the colon is far more common in the male than in the female. In a series of 129 cases reported from the Johns Hopkins Hospital during the past thirty years, the ratio of males was about 2 to 1 as compared to the females. This same ratio was also given by the Mayo Clinic in the nine-year period from 1915 to 1923, and this same proportion held good in our own series.

Carcinoma of the colon is rarely ever found in patients under 30 years of age, although Miller, of Johns Hopkins, reported 12 of his 129 cases as being under 30, one of them being only 17. Mayo reports seven cases under 30, and one case only 20. Our youngest case was a rectosigmoid carcinoma in a man 24 years of age and one of the cases herein reported was only 32 years of age.

Carcinoma of the colon presents the same histologic varieties as the stomach, namely, adenocarcinoma, medullary carcinoma, the hard scirrhous variety and the mucoid or colloid type. The medullary type often

grows to considerable size and may slough deeply, while the scirrhous type tends to encircle the bowel and produce the well-known stenotic or so-called napkin-ring type, with only superficial ulceration.

Carcinoma of the colon may occur at any point, but the most frequent sites for its occurrence are the cecum in over one-third of the cases, the sigmoid in about one-third, the hepatic and splenic flexures in one-sixth, and the remaining one-sixth in the ascending, transverse and descending colon. W. J. Mayo, in reporting 359 cases of carcinoma of the colon, found 115 cases occurring in the cecum and ascending colon as compared to 50 cases in the transverse colon, and 143 cases in the descending colon and the sigmoid. The remaining cases were about equally divided between the hepatic and splenic flexures. Fifty-four of their total, 359 cases, were of the napkin-ring type.

Cancer of the colon differs from cancer of the stomach in that metastasis from the colon is far less common, probably due to the fact that the distribution of lymphatics in the colon is very limited compared to those of the stomach or small bowel. Necropsies have shown that, in as many as 50 per cent of patients dying of malignancy of the colon, the disease has remained local, death being due to obstruction, perforation or peritonitis.

SYMPTOMATOLOGY

There are three quite distinct groups to be recognized at the time these patients seek advice: First, those with acute intestinal obstruction. This group, unfortunately, has constituted a major portion of the cases seen by us. Secondly, there are those who have had definite chronic partial obstruction, which has never become acute; and thirdly, those whose history is rather vague and indefinite but offers no evidence of obstruction. In a recent report of 129

*Read before the Upper Cumberland Medical Society, June, 1928.

cases from the Johns Hopkins Hospital, Miller states that 20 per cent of them belong to the group with obstruction and that another 40 per cent belong to the group with partial obstruction, leaving only 40 per cent without any obstructive symptoms.

Among the chronic obstruction cases, the outstanding feature is the history of recurrent attacks of colicky pain, nausea and vomiting, without any definite radiation of the pain in many cases, or without much definite localization of the pain. There is frequently a marked tendency to constipation and occasionally diarrhea is the prominent symptom. Every case of constipation coming up rather suddenly in an elderly person, and requiring purgatives, should be suspected of cancer of the colon. Every diarrhea of recent origin that persists with a tendency to become chronic may be caused by a malignant growth. There may be a history of blood in the stools, but many times such a story is lacking. The source of blood from the rectum should be painstakingly investigated by visual, digital, proctoscopic, rectal examination and by X-ray pictures of the colon, until definitely located.

Moderate abdominal pain of fairly accurate localization is not uncommon, but usually the complaint is more of a gastric distress or of an indefinite abdominal discomfort, particularly causing one the sensation of gas in the intestine or a fullness in the stomach. Occasionally an abdominal mass has been discovered by the patient, most frequently in the ascending colon or cecum. These are the most favorable cases for operation. They are usually early. There is a great tendency to refer all gastro-intestinal symptoms to the stomach and frequent mention is made of distress or soreness in the upper abdomen, with belching of gas and loss of appetite, loss of weight and strength, and kindred complaints. The duration of these symptoms, as a rule, varies from twelve to eighteen months, or even two years, the average duration probably being about over a year.

It appears, therefore, that for many

months these patients constantly present symptoms which escape recognition and they fail to appreciate the significance of the symptoms or to investigate the cause of the trouble, and many times these patients, with their suggestive though indefinite stories, are casually passed along by their local physician with only a prescription or some other advice, without even the slightest examination being made. One such case that, six months previous to our seeing her with a complete intestinal obstruction from a napkin-ring carcinoma of the sigmoid, had spent a week in a hospital under the care of one of our best internists and seen by one of our most competent surgeons without any diagnosis having been made and without even an X-ray of the colon having been employed. We have also previously reported five cases of carcinoma of the upper rectum or rectosigmoid junction with complete intestinal obstruction at the time these cases were seen by us, none of which had ever had a rectal examination previous to the complete obstruction, and in all of these cases the diagnosis was readily made by a simple digital examination of the rectum. It is good practice to bear in mind the old dictum to examine the rectum in every case in which there is some indefinite complaint of an abdominal character, particularly if there has been any constipation, diarrhea or disturbances of any gastro-intestinal character in a patient of middle age or elderly life.

The diagnosis in these cases is usually suggested by the clinical story and the physical examination but, if one is still in doubt, the X-ray is usually conclusive, it being very valuable indeed in the cases that do not have a complete obstruction, and in this type of case it is usually the most needed in making the diagnosis. The barium enema is imperative in case of doubt and should be very frequently employed in all but the most obvious cases with obstructive symptoms. Here it is dangerous to delay and barium meals and enemata are unnecessary and harmful. Carman states that carcinoma of the colon will show a fill-

ing defect in about 90 per cent of the cases and that the defect will be missed occasionally, more often when it is located in the cecum. It then remains for us to demonstrate clinically whether or not this defect is probably of a malignant nature, bearing in mind that the most probable diagnosis is carcinoma and not dismissing the case until this is proven or disproven.

TREATMENT

The curative treatment of carcinoma of the colon is purely surgical and next to carcinoma of the fundus of the uterus it is the most amenable to cure of all deep-seated cancers of the body. It consists in the complete removal of the entire carcinomatous lesion with its metastatic glands, should they exist, if this can be accomplished. The right side of the colon lends itself better to surgical procedures than the left half. There are less glands on the right side and the circulation is less interfered with by surgery than is the case on the left side. The mortality of the resections on the right side is also less than that of the left side, probably due to the less circulatory disturbance at the time of the operation on the right side and also to the fact that the normal content of the left side is much more septic than that of the right side. The Johns Hopkins report stated that their mortality was about 35 per cent in a series of seventy resections of the colon. W. J. Mayo reported, in 1923, 416 cases with a mortality of about 12 per cent on the right side and about 17 per cent on the left side, with an average mortality of about 14 per cent. The mortality, as reported by Johns Hopkins, is probably nearer the mortality rate of the average clinic and particularly is this true where a great many of the cases are suffering from an obstruction, as occurred in our own series.

The surgical problem in cases with obstruction is, first, the relief of the obstruction by cecostomy and drainage. The one-stage operation, with radical removal of the growth, is not applicable in the presence of obstruction. It is "ideal" in name only and

not to be considered in cases of obstruction. In obstruction of the sigmoid, colostomy should precede the extirpation. Where the whole growth can be lifted out of the incision it may be left out as a colostomy, then removed after eight or ten days, and the resulting double-barrel arrangement of the two loops can be cut through by a pressure forceps after the method of Mikulicz, and the external opening closed over after the channel has been made.

After the obstruction, should it exist, has been successfully dealt with, the main consideration is the problem of removing the carcinomatous neoplasm and the re-establishing of the lumen of the intestinal tract. This may be accomplished by the so-called one-stage resection or, better, by a preliminary drainage operation, followed later by resection of the growth itself. The re-establishment of the tract may be accomplished by either an end-to-side anastomosis or a side-to-side anastomosis or by end-to-end approximation. It is better to use the method best adapted to the individual case.

The following cases will illustrate some of the more important varieties and types of surgical procedures in carcinoma of the colon:

CASE I

A young man, 32 years of age, had been suffering for two or three months with very slight attacks of abdominal discomfort, so slight, in fact, that little attention had been paid to them until one month previous to admission to St. Thomas Hospital. During that month his pain had been slight but occurring at very frequent intervals, accompanied by soreness and tenderness in the right ileac region practically all the time. The leukocyte count was 11,000, temperature 101, and tenderness over McBurney's point was marked. A diagnosis of a mild acute appendix was made and operation advised. A carcinomatous mass about the size of a half lemon was found at the head of the cecum. We have operated upon two other cases of early carcinoma of the cecum that simulated and were diagnosed as appendicitis. There were several large glands

about the mesentery in this case, one of which was removed for a microscopical examination. The report on this gland was that of inflammation with no evidence of malignancy.



FIG. 1. Carcinoma of head of cecum in male patient, age 32, resected by Mayo method. Patient now well at the end of three years.

Inasmuch as this patient had not been prepared for a resection, a lateral anastomosis of the ileum to the beginning transverse colon was done and two weeks later the entire cecum and ascending colon were resected, the pathologic examination showing adenocarcinoma. The cut ends of the ileum and transverse colon, respectively, were closed, the anastomosis having been previously established. All of the enlarged glands had disappeared at the second operation, save one which was removed with the growth but did not show any malignant cells. Although this patient is very young, through a mistake of diagnosis, the operation was probably in time to hope for a good prognosis. He is well at the end of three years. Most surgeons now are doing right colon resections in two stages, as in this case.

(See Figs. 1 and 2.)

CASE II

Male, 46 years of age, gave the usual indefinite symptoms of some left-sided abdominal discomfort over a period of several months with the loss of 37 pounds in weight. He had been X-rayed elsewhere and the diagnosis of a colonic lesion made. We verified this by X-ray plates and advised

operation. A typical napkin-ring carcinoma of the lower sigmoid was found. An end-to-end anastomosis was done, following the excision of the growth according to the Balfour tube method. No glandular metastasis could be found at any place in the abdomen and this patient made an uneventful recovery, leaving the hospital at the end of two and a half weeks following his resection.

(See Fig. 3.)

CASE III

Case No. 3 was a female, 62 years of age, small of stature, very frail, having lost many pounds of weight and had been confined to the bed for several weeks, with some blood in the stools, and diarrhea at times. She had been treated by a number of men during the previous two years for so-called stomach trouble. The X-ray showed a large filling defect in the sigmoid which proved to be malignant. A first-stage Mikulicz operation was performed on this patient in September, 1917. Seven days later the large carcinomatous growth which had been placed outside of the abdomen and supported by a glass rod under the growth across the abdomen, owing to the great



FIG. 2. Barium enema one month after resection of cecum, ascending colon and hepatic flexure for cancer cecum. Same case as Fig. 1.

size, was removed by the cautery. The third operation was performed two weeks later for the closure of the colostomy, following the partial re-establishment of the intestinal lumen by means of the Ochsner clamp



FIG. 3. X-ray film of Case No. II, showing typical defect of napkin-ring cancer of the lower sigmoid in a male patient. Resected by the Balfour tube method. Patient now living and well at the end of three and one-half years.

or a "blind cecostomy" under local anesthesia without any effort at unwise exploration and exact diagnosis in the desperate cases. If the lesion is in the proximal colon, an ileostomy, as recommended by Judd, in cases with obstruction, has merit. We concur in the wisdom of the two-stage operation as the safest measure in the majority of resections of the colon.

The surgery of the colon is major surgery. It is very extensive. The technical features are very exacting. A saddening proportion is recognized, first, by the dead onset of obstruction that yields nearly 50 per cent mortality—the mortality of the difficulty of diagnosis in the early stages. We practice and advocate a searching inquiry into all cases of gastro-intestinal trouble with such common and neglected symptoms as constipation or diarrhea, not omitting the barium enema to disclose the presence or absence of these lethal lesions. In the early stages they respond successfully to surgical efforts but, if undetected, are appalling in their tragedy.

applied into the proximal and distal loop of the colon through the two limbs of the colostomy.

(See Fig. 4.)

This patient weighed 67 pounds when she left the hospital, is now living and well, and weighs 120 pounds at the end of eleven years after operation.

We believe the Mikulicz operation is far preferable in all bad risk cases of patients with medium to marked obstruction, and especially when the lesion is at a point in the sigmoid where it can be readily even-trated. Here obstruction produces the greatest amount of toxicity and the anatomy of the bowels lends itself well to this method.

We strongly advocate the practice of preliminary colostomy in the obstructed cases



FIG. 4. X-ray film of female patient (Case No. III) eight years after Mikulicz operation for cancer sigmoid. Note barium enema easily passes up through sigmoid to splenic flexure of colon. Patient now 73 and well 11 years after operation.

THE JOURNAL

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TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee

Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

H. H. SHOULDERS, M.D., Editor and Secretary

MAY, 1929

EDITORIAL**THE 1930 MEETING OF THE TENNESSEE
STATE MEDICAL ASSOCIATION.**

The 1930 meeting of the State Association, according to rotation, should go to East Tennessee but the House of Delegates voted some years ago to celebrate the hundredth anniversary of the organization of the Tennessee State Medical Association at Nashville in 1930. It was thought appropriate that this celebration take place in the capital city. It is sincerely hoped that the scientific program can be of such a character as to portray in some measure the tremendous advances that have been made in the science and art of medicine during the century ending next year.

A committee on history will be ready to report and may submit a printed volume touching the medical history of Tennessee for this century. The personnel of the committee gives assurance that its report will be one of the most interesting volumes possible to medical men of Tennessee.

The chairman of the program committee is already giving some thought to the program of that meeting and will take occasion now to request suggestions as to how this program should be developed so as to make it most appropriate for such a celebration.

The Nashville Academy of Medicine and the Davidson County Medical Society are already taking steps to arrange for a large attendance.

**BEST METHOD OF CARING FOR INDIGENT
SICK**

The following editorial under the above heading appeared in the January issue of the Journal of the Iowa State Medical So-

ciety. The editor is Dr. Ralph R. Simmons of Des Moines, Iowa.

Since many suggestions are being made with reference to the problem of taking care of the indigent sick and since few of them take into account the status of the doctor, it has been thought proper that this editorial be run in full. Certainly the method is unique and from reports it works and is growing in favor in the west. It seems to come nearer doing justice to all parties concerned than any plan we have examined.

We endeavor to glean from a wide field and present such gleanings as we can from time to time.

Furnishing medical service for the county poor presents a serious problem to the members of most county societies in Iowa. The Haskell-Klaus law provides for those needing hospital care, and the situation here referred to does not in any way affect the operation of that law; but the ambulatory and home bedside cases and all inmates of county jails, poor farms, etc., present a grave problem. How is the county to pay for medical services for these cases that must be cared for locally? Supervisors, social workers, volunteer agencies, medical societies and individual physicians have tried various solutions; but, with one single exception, every method has various drawbacks, most of which end by working numerous hardships upon the medical profession.

This successful method has for sometime past been in satisfactory use in five societies. Three others are now contemplating adoption of the same system. The plan is that of a blanket contract between the medical society and the county supervisors, by which the county pays a fixed annual sum in return for which the society furnishes the county poor all medical care not provided at the University Hospital under the Haskell-Klaus law (including chronic or incurable cases discharged to make room for those who can be benefited by hospitalization at Iowa City).

The annual payment varies from \$1,600 to \$3,250 and goes into the society treasury. Service to the indigent sick is rendered upon order of the supervisors, township trustees, or other authorized persons; and such service is distributed among the members of the society as evenly as possible.

The societies having such contracts are Hardin county, Marion county, Marshall county, Webster county and Waterloo (the latter being limited to the city of Waterloo). Monroe, Page and Tama counties have similar proposals under consideration. The advantages of this plan, according to its advocates, are:

1. Unjust inequalities in payment to physicians for indigent services, eliminated.

2. Removal of friction between the county medical society or its members and the board of supervisors or social workers.

3. General satisfaction of the community with its physicians because of effective medical service given to the indigent sick.

4. A full treasury which solves the financial problems of the county society.

The latter point is an important one in many ways. The secretary-treasurer never needs to worry about collecting dues, nor members about paying; for county, state, and A. M. A. dues can all be paid out of the general funds of the component society. Expense money is always available to bring the best of speakers from even distant points, so that the problems of the program committee are solved.

As an illustration of the financial success of this plan, it is interesting to note that the society which receives the smallest per annum payment still has in its treasury some \$7,000. Such surplus can of course be distributed annually among members on the basis of service rendered. Incorporation of the county society is a necessary step since the corporation can then enter into a contract with the supervisors, and more especially since incorporation relieves the member physicians of any individual liabilities for acts of others.

The Council is given special attention to this growing development among component societies in Iowa; and will gladly assist, through the state office, any society interested in this plan.

The subscription year of the Journal ends with the April issue. The May issue is the beginning of volume XXII.

Doctors who were members of the State Society during the year 1928 are entitled to receive the Journal up to and including the April issue. Those who have not paid dues for 1929 will not receive the May issue of the Journal.

There are about three hundred doctors scattered throughout the state who have not paid dues for 1929. It is sincerely hoped that the dues from these men will be received at the headquarters office before the mailing list for the May issue of the Journal is made up.

Again we will say, please pay your dues promptly and get all the issues of the Journal—retain your membership in your county organization, the state organization and the American Medical Association.

DEATHS

Dr. Wm. Bailey died at his home in Nashville, April 20th, aged 65. He had been in ill health for sixteen years.

Dr. Bailey graduated from the University of Nashville Medical School in 1885. Resolutions passed by the Nashville Academy of Medicine are published in this issue.

Dr. W. B. Lee, 72, died suddenly on April 9th at his home in Nashville. He graduated from the University of Nashville in 1881.

Dr. John Shannon, 65, of Greenfield was killed instantly on April 25th when his auto was struck by a train.

Dr. Shannon graduated from the University of Louisville Medical Department in 1890.

Dr. John A. Witherspoon, 64, died at his home in Nashville on April 26th. Resolutions passed by the Nashville Academy of Medicine are published in this issue.

RESOLUTIONS

Dr. John Martin Arnold was born January 27, 1852, and died of apoplexy on April 3, 1929, at the Crooks Sanatorium, Jackson, Tenn.

Dr. Arnold was married to Miss Laura Dodds on April 12, 1882. He graduated from Vanderbilt Medical School in 1879. Practiced Medicine from 1879-1907 in Henderson County, and from 1907-1929 in Jackson, Tenn. He was engaged in active practice for fifty years. He has always been an active member of the Tennessee State Medical Association and The Madison County Medical Society.

DOCTOR JOHN A. WITHERSPOON

The Nashville Academy of Medicine and the Davidson County Medical Society have been called upon by the God of Hosts to yield to its Maker a rare spirit, who, in

mortal life, constituted one of its chief adornments, enhanced by general admiration and universal affection.

This tribute to mortality is associated with no common sorrow nor will the vacant place be easily filled. The summons finds a sorrowful echo not only throughout the medical profession, but also in the hearts of thousands for whom his abundant skill and sympathetic understanding smoothed the path of life and left a sweet memory.

Endowed by the lavish hand of a beneficent nature with extraordinary and diversified talents, he was peculiarly fitted to play a broad role on the stage of life. In him were embraced all the qualities required of true manhood, a great physician, inspiring leadership and an ideal citizen.

Impelled by stern devotion to duty's call, he responded courageously and gave abundantly and freely of his means, his matchless talent and his unlimited influence.

As a worshiper at the altar of science, ever mindful of those following in his footsteps, he held aloft the bright torch of learning.

A worthy recipient of the highest honor which his chosen profession could bestow, he remained gracious and unassuming.

Always inspired by deep devotion to home and country he rendered conspicuous service in time of peril.

In the clustered attributes of greatness lay a flower whose chief charm was the fragrance of a deeply human personality.

To those who knew him remains this solace and consolation, in the bright rainbow athwart the sky of memory are luminously written these words: Fidelity, Courage, Honor.

W. D. HAGGARD,
H. M. TIGERT,
C. N. COWDEN,
ROBERT CALDWELL,
Committee.

April 30, 1929.

DOCTOR WILLIAM BAILEY

In the death of Doctor William Bailey, which occurred on April 20th at his home in this city, the medical profession lost one of

its outstanding members and the City of Nashville one of its most exemplary citizens.

For several years past Dr. Bailey, by reason of ill health, had not been in active work, but for thirty years before that he had enjoyed an extensive practice in this community. Reared in a home of refinement, trained by precept and example to a life of service and a studious pursuit of knowledge—he carried into his chosen profession those qualities of head and heart that serve to keep our calling on its high plane. He brought into the sick room a pleasing address, a personal interest in the patient and an excellent knowledge of medicine, and with it all a most becoming modesty—qualities that make for an enduring period of usefulness.

We wish here to express our sense of professional and personal loss in Dr. Bailey's death and we ask our secretary to inscribe in the minutes this tribute to his memory.

W. H. WITT,
A. W. HARRIS,
M. B. DAVIS.

MEDICAL SOCIETIES

REGULAR MEETINGS OF COUNTY SOCIETIES

Anderson County—First Monday of each month at 2 p.m. in Clinton, Tenn.

Bedford County—Third Thursday of each month at 2 p.m., Shelbyville, in Dr. Ray's office.

Blount County—Every Thursday, 8 p.m., First National Bank Building, Maryville.

Bradley County—First and third Thursdays of each month, 7 p.m., at the courthouse, office of county health officer.

Carroll-Weakley-Benton-Henry Counties—Every second Tuesday at McKenzie.

Carter County—First Monday of each month, 7:30 p.m., No. 21, First Nat'l Bank Bldg., Elizabethton.

Cocke County—First Tuesday of each month at Newport.

Coffee County—First Thursday of each month.

Cumberland-Overton-Putnam-White Counties—Third Thursday of each month.

Davidson County—Every Tuesday, 8 p.m., Doctors' Building, Nashville.

Dyer-Crockett-Lake Counties—First Thursday of each month.

Fayette-Hardeman—First Thursday in each month.

Franklin County—Last Friday in each month at 7 p.m., at the courthouse, Winchester.

Greene County—Second Tuesday of each month, 7 p.m.

Hamilton County—Each Thursday, 8 p.m., Manufacturers' Association, 815 Broad Street, Chattanooga.

Hardeman County—First Tuesday in January, April, July and October, Bolivar.

Hardin-Lawrence-Lewis-Perry-Wayne Counties—Last Tuesday.

Hancock-Claiborne-Union Counties—Second Monday in each month.

Haywood County—Last Tuesday of each month. Brownsville, 7 p.m.

Jackson County—First Friday of each month at the courthouse, Gainesboro.

Knox County—Every Tuesday, 8 p.m., at Society Hall Medical Building, Knoxville.

Lauderdale-Tipton Counties—Second Thursday of each month.

Loudon County—First Thursday of each month, 7 p.m., Loudon and Lenoir City, alternately.

Marshall County—Every fourth Thursday; Lewisburg.

McMinn County—Every second Thursday, 2 p.m., in Athens, at Dr. J. R. Nankivell's office.

McNairy County—Third Thursday in March at 1 p.m., at Selmer.

Macon-Clay-Jackson — First Wednesday of each quarter.

Madison County—First and third Tuesday, 7:30 p.m., at the Y.M.C.A.

Monroe County—Second Tuesday of June, Madisonville.

Montgomery County — Every third Thursday night, Clarksville.

Maury County—Second Monday of each month, Elks Lodge Room, Columbia, at 11:00 a.m.

Overton County—Third Friday of each month.

Putnam County—First Thursday of each month, 1:30 p.m.

Roane County—First and third Tuesday, 1 p.m., at the Red Cross Rooms, Harriman.

Robertson County—Third Tuesdays of each month.

Sevier County—First Monday of each month, 7:30 p.m., Central Hotel, Sevierville.

Shelby County—First and third Tuesdays Medical Arts Building, Memphis.

Smith County—First Friday of each month.

Warren County—First Wednesday of each month, 1:30 p.m., First Trust Co., McMinnville.

Washington County—Second Thursday of each month, at noon, Hotel John Sevier, Johnson City.

Weakley County—Third Wednesday of February, May, August and November at Martin. (Joint scientific meetings monthly at McKenzie.)

White County—Second Thursday of each month, Dr. S. E. Gaines' office.

Williamson County—Second Tuesday of each month.

Wilson County—First Wednesday of each month, 10:30 a.m., at Lebanon.

Davidson County—April 16th, "Radium in Gynecology" by Dr. Carl S. McMurry; discussion opened by Dr. Carl R. Crutchfield.

April 23rd, "The Treatment of Paresis with special reference to Malaria," by Dr. H. B. Bracken; discussion opened by Dr. W. S. Farmer. "Two cases of persistent Jaundice in the New Born" were reported by Dr. Jas. Overall.

April 30th: The meeting was held at the plant of the Jersey Farm Milk Service and refreshments were served after the meeting. The essay was read by Dr. C. M. Miller, subject "Gun shot wounds of the Abdomen,"—discussion opened by Dr. W. M. McCabe.

May 7th: "Gonorrhea in the Female Genitalia" by Dr. L. E. Burch; discussion opened by Dr. J. F. Gallagher.

Case report by Dr. W. D. Haggard.

Smith County—April 5th: The Smith County Medical Society met in the office of Dr. R. E. Key, at Carthage. Seven or eight physicians were present.

Knox County—April 16th: Dr. E. S. Clayton read a paper on "Primary Multiple Carcinoma." Discussion opened by Dr. Ralph Monger.

April 23rd: Dr. G. A. Williamson read a paper on "Hemorrhages Occurring During Pregnancy." Discussion opened by Dr. M. L. Jenkins.

April 30th: Dr. Joe T. Smith read a paper on "The Summer Diarrheas in Infancy."

Hamilton County—On April 25th sixty members were present to hear Dr. David C. Wilson of Clifton Springs, New York, speak on "Epidemic Encephalities."

Roane County—The regular meeting of the Roane County Medical Society was held at the Harriman Hotel on April 16th. The following members were present: Drs. J. C. Wilson, G. E. Wilson, T. H. Phillips, T. L. Bowman, R. F. Regester, of Rockwood; J. J. Waller, Oliver Springs; W. H. Hill, Harriman. The following visitors were present: Drs. Wood, Ford, Waterhouse and Lancaster from Knoxville, and Dr. Stiltner of Oliver Springs.

Dr. E. C. Ford read a paper on "Suggestions on Diagnosis and Treatment of the Common Ano-Rectal Diseases."

Dr. Robert Wood read a paper on "Diseases of the Nervous System."

Five County Society—On April 30th, the Five County Medical Society met at the court house in Linden. After invocation by Rev. G. W. Adkins and reading of the minutes, the following papers were read:

"Treatment of Typhoid Fever," by Dr. W. H. Neal; discussion opened by Dr. A. D. Cole.

"Thyroid and Manganese Therapy," by Dr. T. A. McAmis; discussion opened by Dr. O. C. Doty.

"Malaria" by Dr. O. A. Kirk; discussion opened by Dr. W. E. Farris.

"Diseases of the Mouth," with lantern slide demonstration, by Dr. Geo. F. Seeman, Nashville; discussion opened by Dr. J. J. Reavis.

The afternoon session consisted of a round table discussion on the diagnosis and treatment of Placenta Previa,—Ileocolitis and Vomiting of Pregnancy.

OTHER SOCIETIES

The thirty-eighth annual meeting of the West Tennessee Medical Society will convene in Martin Thursday and Friday, May 23-24.

The Upper Cumberland Medical Society will hold its thirty-fifth annual meeting at Red Boiling Springs June 4th and 5th. The program has been completed and is at least equal to, if not better, than the high standard always enjoyed by the members of this association.

NEWS NOTES AND COMMENT

Dr. W. S. Dooley has moved from Wilder to Crossville.

Dr. F. B. Hulme has returned to Pulaski after an extensive course in ear, eye, nose and throat work.

Dr. George Grant Henson of Miami, Florida, has located in Knoxville, and will do general practice.

Dr. J. L. Raulston of Richard City has located in Knoxville and will do general practice.

Dr. L. A. Absher of Portland has located in Knoxville and will do general practice.

Dr. S. J. Platt of Knoxville, graduate of University of Tennessee Medical Department, has opened offices in Knoxville and will do general practice.

Dr. G. C. English of Mt. Pleasant has entered the race for mayor of his town.

C. W. Jennings closed the doors of his pharmacy in the Doctors' building for two hours Tuesday night and entertained the physicians of the Nashville Academy of Medicine with a Dutch supper, then the "fine and dandy" host gave each physician a surprise package containing everything from the latest perfume to a new brand of soap.

Two long tables reaching the full length of the store replaced the counters and merry funmaking took the place of "Yes, sir, what will you have." A string band furnished music.

AMERICAN PHARMACEUTICAL MANUFACTURERS TO MEET AT OLD POINT COMFORT, VA.

The Chamberlin-Vanderbilt Hotel at Old Point Comfort, Va., has been selected for the annual meeting of the American Pharmaceutical Manufacturers' Association to be held June 3-6.

The meeting this year will take on an international aspect, as invitations have been extended to more than twenty-five leading Canadian manufacturers to attend and participate. Representatives of the British Chemical Manufacturers have also been invited.

Discussion of distribution problems will be one of the principal features of the meeting. This discussion will be led by Mr. Frank A. Mallett of the Standard Chemical Co. of Des Moines, Iowa.

Closely allied to distribution is the work of the publicity committee. Their report will include the results of a survey of the medical profession which has recently been

started to improve the service of the association to the profession.

There will be exhibits of medical advertising by some of the members and many practical advertising and publicity problems will be discussed.

The following committees will have charge of the various sections of the program.

Attendance: Bern B. Grubb, Lafayette Pharmacal Co.

Business Policy: J. H. Foy, Maltbie Chemical Co.

Contact: C. E. Vanderkleed, Robert McNeil. (Including report of Research Board.)

National Drug Trade Conference: Harry Noonan, Drug Products Co.

Distribution Problems: F. A. Mallett, Standard Chemical Co.

Legislative: C. D. Smith Pharmacal Co. (Including report of Councilor, U. S. Chamber of Commerce.)

Meeting—Annual: H. B. Johnson, Zemmer Co.

Membership: Dr. C. H. Searle, G. D. Searle & Co.

Memorial: B. L. Maltbie, Altamonte Springs, Fla.

Prior Rights Board: R. R. Patch, E. L. Patch Co.

Publicity: F. A. Lawson, E. L. Patch Co.

Research Awards: Dr. A. S. Burdick, Abbott Laboratories.

Sales Problems: Dr. H. Sheridan Baketel, Reed & Carnrick.

Standardization and Simplification: R. M. Cain, Swan-Myers Co.

Standardization of Glass Containers: C. C. Doll, Zemmer Co.

Trade Names: R. R. Patch, E. L. Patch Co.

Speakers of national reputation have been secured for the annual banquet, which will be one of the features of the meeting.

Under the able leadership of Mr. R. Lincoln McNeil who has been president during the past two years, the A. P. M. A. has been very active in all departments of its work. The annual meeting at Old Point Comfort bids fair to be the most successful in the history of the Association.

BOOKS RECEIVED

"EDEMA AND ITS TREATMENT," by Herman Elwyn, M.D. Price, \$2.50. 182 pages. Publishers, The Macmillan Company, New York.

BOOK REVIEWS

ANGINA PECTORIS. By Harlow Brooks, M.D., 176 pages. Price \$2.50. Harper & Brothers, Publishers, New York City.

This little volume is one of the Harper's Medical Monographs, being published on a variety of timely subjects. The personnel of the Board of Advisory Editors guarantees that the publications will be of a high order.

The present volume presents the subject from every standpoint and usually, though not always, in a satisfactory way. There is so much variation of opinion on the essential pathology of the aural syndrom and on the mode of production of the symptoms and their relief that an author trying to cover the entire field necessarily becomes a bit tiresome and unconvincing. After all, the chief things to bear in mind are the symptoms, mild or severe, and the treatment. These Dr. Brooks discusses admirably. He takes issue with many authors, including Mackenzie, in that he recognizes the validity of the term pseudo-angina. In this I think he is entirely right.

A chapter is devoted to the surgical treatment of the condition and a conservative view taken of its value.

W. H. W.

GLEANINGS

IS DIPHTHERIA ON THE INCREASE?

Professor J. von Bokay, of Budapest, who has been in close touch with diphtheria and its serum treatment for the past 40 years, believes that during the past two or three years the malady shows some tendency to increase in both frequency and severity. Curves plotted show rise of morbidity at

1890-2, 1903-4, 1915-16 and 1927. These intervals show some regularity. The mortality curve is much less striking, for since the initial decline following introduction of serum treatment there have been no marked exacerbations, although the mortality for 1927 is higher than for the preceding nine years. Other statistics of much interest refer to the doses of serum in use at different periods. Up to 1899 the average dose was about 1,500-3,000 units, but by 1905 it was 2,000-4,000, and by 1908, 3,000-6,000. In 1918 it had risen to 6,000-8,000. During all of this long period the maximum given was not over 8,000, but in the past two years some severe cases have received specially large amounts, ranging up to 50,000 units. These Budapest figures, high as they are, have been exceeded elsewhere, as in Copenhagen, where 100,000 units have been exhibited to a single patient. Can this great increase in dosage be explained in any other way than that the disease is not abating in severity? Since the dosage of serum began to go up it has shown no tendency to come down again. It is true, of course, that the former doses are now generally regarded as absurdly small, while the increase was natural as soon as it became apparent that much larger doses could be tolerated and were the patients' right. If the dosage must be so high this is the greater argument for immunization by the Schick method, but like most continental authorities the author is silent on this resource. As the mortality from the disease is still small, the chief significance of the author's remarks is related to the future. Incidentally, he is unable to connect any increase in virulence of the disease with mixed streptococcus infection.—*Duetsche medizinische Wochenschrift*, August 3, 1928.

ABSTRACTS OF CURRENT LITERATURE

ANESTHESIA

By Hugh Barr, M.D.
Medical Arts Bldg., Nashville

The Place of Ethylene-Oxygen Anesthesia in General Surgery. James Thomas Nix, M.D., New Orleans. *New Orleans Medical and Surgical Journal*, February, 1929.

The author states that in the year ending January 1, 1928, the Mayo Clinic used ethylene in 33 per cent of 21,773 anesthetics, ether in 50 per cent or more. He believes ethylene is the anesthetic of choice, although it must be given by an expert and the surgeon must conform to this mode of anesthesia, as relaxation is not as perfect as with ether. He mentions two cases of respiratory failure in 1,500 of his cases, but resuscitation measures were successful. One slight explosion occurred but he thinks the hazard is no greater than with ether when necessary precautions are made.

As to the last 100 anesthetics he makes the following observations:

1. In tabulating these, 102 general anesthetics were counted, for in two operations a small percentage of ether was added, in one instance, to secure greater relaxation of the abdominal muscles, and in the other to act as a cardiac and respiratory stimulant.

2. There were no anesthetic difficulties. All patients were in surgical sleep within ten minutes. With comparative ease the surgical stage was maintained during the entire operation.

3. Slight nausea and vomiting were generally present immediately after the discontinuance of the anesthetic. Occasionally this lasted several hours. Twenty-seven per cent showed some nausea, although only two per cent were sufficiently severe to call for medical aid.

4. One of the series became hysterical after returning from the operating room, and this probably was due to a severe misfortune which had very recently befallen her home, just two days previous.

5. Acetone appeared in the urine of 57 per cent of cases on the first day postoperative. It usually increased on the second and third days, quickly disappearing after giving the patient nourishment.

6. Gas pains and distention caused little discomfort and called for no measures of relief except a hot water bag to the abdomen and rectal tube in all but six per cent of the cases. In 55 per cent, however, these were manifest to a very slight degree.

7. Postoperative albuminuria, one per cent above, occurred in four cases. In each there was definite evidence of existing or previous kidney disease. Mrs. H., blood pressure 178/110 showed five per cent albumin on the fourth day. Mrs. C.,

acute nephritis three years previous, postoperative albumin one per cent, red blood cells and a few casts. The other two cases also gave a history of previous kidney disease. Preoperative urinalyses in all cases were negative.

8. Coagulation time was definitely shortened in 70 per cent and lengthened in 16 per cent, remaining stationary in 14 per cent. In no instance was the increase sufficient to cause alarm.

9. Vomiting of blood occurred in one case; about one tablespoonful bright red blood was vomited ten hours after a simple herniotomy in a child twelve years old.

10. Blood pressure: It usually rose slightly during the operation but at the conclusion showed little change over the preporeative blood pressure. In 45 per cent there was a rise of 20 or less. In 20 per cent it remained unchanged. There was very little change in the diastolic blood pressure.

11. Two of our cases were convalescing from influenza and in each instance the cough became worse, the expectoration more profuse and purulent.

Ethylene has no effect on healthy lungs but might easily cause an acute flare up in lungs showing existing mild infection.

12. One of the patients in this series died; that a male, 57 years old, having a gangrenous appendix. He was a very poor surgical risk and only operated on as an emergency. The others made uneventful recoveries.

The thermocautery is used by us in severing an appendix and searing the stump, but only after many precautions are taken. This is the only time the cautery is permitted in our operations. We had one near explosion, in 1925, when ethylene vapor beneath the sheets on the operating table ignited. The tanks had previously been turned off, the patient's lungs washed with oxygen, and no ill effects resulted.

What we have said detrimental to ethylene anesthesia applies in great measure to ether and other anesthetics. Many of the favorable criteria pertain to ethylene alone.

In drafting a conclusion let me begin with the opinion of Gwathney: "Ethylene is steadily gaining ground. So far we have not found a gas or anesthesia to replace it." Also Dean Lewis, in *Practice of Surgery* (1928), Vol. 1, Chapter 3, Anesthesia, page 23: "Ethylene anesthesia produces muscular relaxation almost equal to ether."

Conclusions

In our opinion:

1. In the hands of an expert, ethylene is as safe as ether.

2. It is the anesthetic of choice for general surgery, good risks as well as bad ones.

3. The normal body functions are less disturbed than with other anesthetics. During the operation and afterwards a condition approaching normalcy prevails.

4. The cost, though above ether, is by no means prohibitive.

5. There are times when a local, spinal, local with ethylene, or rectal anesthesia are to be preferred.

6. Existing pulmonary infection or kidney pathology is sometimes slightly aggravated by the administration of ethylene.

7. Comparing it with the other general anesthetics, the minor objections to ethylene are far outweighed by its immense advantages. The many trying hours, and sometimes days, of gas pains, irritative cough, occasional conjunctivitis, nausea and vomiting are now forgotten.

Post-Anesthetic and Post-Operative Psychoses. **J. B. Doyle, British Journal Anesthesia, July, 1928.**

Post-anesthetic psychoses are rare and of short duration. There are cases on record that lasted only one minute characterized by acute delirium and stupor. Sometimes delirium has occurred after ethylene anesthesia due to anoxemia.

The author discusses twenty-eight consecutive cases that have occurred at the Mayo Clinic. The interval between operation and development of symptoms varied from thirty minutes to twenty-one days. Four of these had only local anesthesia and twenty-four completely recovered. The treatment consists of rest, dilution, elimination, and the combatting of starvation.

CLINICAL PATHOLOGY

By R. H. Monger, M.D.
Medical Building, Knoxville

Observations on the Occurrence of Nonspecific Agglutinins In Tuberculosis. Robt. A. Keldieffe and Wm. W. Hersohn. The American Review of Tuberculosis, February, 1929.

The authors examined 200 sera from tuberculous patients in accordance with the following:

1. In order to ascertain the correlation, if any, between the presence and degree of agglutination, the cases were classified as (a) incipient, (b) moderate and (c) far advanced, and the temperature and clinical condition of the patient noted at the time the specimen was collected.

2. For the same reason inquiry was made as to the presence or absence of any intercurrent infection.

3. Inquiry was also made as to the administration of typhoid vaccine or the occurrence of typhoid fever in the patient's past medical history.

All sera were tested for agglutinins for B. Typhosus, B. Paratyphosus A, B. Paratyphosus B, B. Proteus X-19, and B. Abortus (Bang) and incidentally, subjected to the Kahn and Wasserman tests. When typhoid or paratyphoid agglutina-

tion was encountered, the feces were cultured for these microorganisms or other pathogens.

The following was obtained from the study:

Nonspecific, Heterologous agglutinins may be produced in tuberculosis for microorganisms of the typhoid group and, infrequently for B. Proteus X-19. There was no apparent relation between the presence or amount of agglutinins and the character or clinical course of the tuberculous infection. The occurrence of agglutinins for microorganisms of the typhoid group is not per se conclusive evidence that they are nonspecific, or Heterologous in origin, as, in a definite number of such cases, the patient will be found to have had typhoid fever or to have received antityphoid vaccine. Heterologous agglutinin production in pulmonary tuberculosis is of relatively infrequent occurrence and has no apparent relation to the clinical course of the disease.

Penetration by Infective Hookworm Larvae of the Materials Used in the Manufacture of Shoes. **Geo. C. Payne. The Am. Jour. of Trop. Med., January, 1929.**

The author found that tropical peasants became infected with hookworm larvae even though they wore shoes. Canvas shoes with rubber soles were generally used. He found that wet canvas shoes are readily penetrated by mature hookworm larvae and probably have no value as protection. It was not shown that larvae can pass through wet leather without defects. Larvae migrate freely over the surface of wet leather and the possibility of their reaching the skin by passing over the surface of wet shoes to their tops must be considered. Larvae readily enter minute defects in leather stitching, hence the period during which an ordinary pair of shoes will give complete protection to a hard-working agricultural laborer is probably very short.

DERMATOLOGY

By E. E. Brown, M.D.
Doctors Building, Nashville

Fungus Infections of the Hands and Feet. Foster M. Johns. New Orleans Medical & Surgical Journal, February, 1929.

The author states that many of the chronic and recurrent ulcerations of eczemas between the toes, pompholyx and eczema matoid conditions of the epithelium of the hands and feet are not only parasitic in origin, but that the focus of infection and continued reinfection of the epithelium of these parts of the body, at least, does occur by transplantation of fungi that are more or less continuously growing in the hornified epithelial cells of the nails and particularly the toenails. All of the members of the ringworm group of fungi are capable of living in this modified epithelium, and while the rate of growth is almost incredibly slow,

the growth extending upward toward the matrix at about the same rate as the cells proliferate and are pushed downward, they provide a constant source of infection over a period of years.

Deforming dystrophies of the nails are generally supposed to be due to inherited diseases, trauma, and occupational injuries. Infections of the nails with members of the ringworm group are supposed to produce softening of the nails with resultant erosion. With precise methods of digesting the nails and liberating and concentrating the fungi without destroying their morphology beyond accurate identification with the microscope, it is really astonishing how many of these conditions may be demonstrated to represent merely the result of a fungus infection that has been present from early childhood.

Treatment of Acne. Stephen Rothman, of Giesen. American Medicine, January, 1929.

According to the writer, a serviceable method of treating this annoying condition is as follows:

Two or three times a day the affected area is washed vigorously with warm water and common green soap; the latter is left on the skin for a few minutes and afterwards rinsed with water as hot as the patient can stand; the area is then dried. If the skin does not tolerate the green soap, becomes chapped and rough, Rothman applies a neutral grease afterwards or, if necessary, he substitutes a toilet soap for the green soap, although the latter is more efficacious. Salicylic acid, usually in the form of a 10 per cent ointment, is then applied and left on overnight. It is to be well rubbed into the skin immediately after washing. Ultra-violet rays exert a normalizing effect upon the cornification (keratinization) processes, in the various keratotic anomalies, and consequently also in acne.

The author says that while we do not as yet understand the mechanism of this action, we know from experience that even small doses are effective. Therefore, we do not need to produce exfoliation. In most cases it is unnecessary to exceed the erythema dose, increasing this very gradually, so that in three or four weeks of bi-weekly irradiation the epithelium should show a reddish-brown discoloration. The effect of the irradiation is decidedly increased if the green soap wash is given immediately before irradiation. It is an important technical rule to expose the face always laterally (from profile) otherwise cosmetic inconveniences such as burning the tip of the nose, etc., will occur. Likewise for cosmetic purposes the eyes should be protected, not by goggles but by thick discs of paper wadding, which when moistened with water stick very well on the closed eyes. Natural sunlight is at least as efficacious as are the artificial light sources (carbon arc, mercury, etc.) Acne is very rarely seen on sunburnt faces.

The comedones must be expressed once or twice a week. This is absolutely necessary as they will not disappear from medicinal or irradiation treatment, and as long as the comedones are not eliminated, it is useless to try to cure the acne.

The method outlined should lead to disappearance of the symptoms in about six weeks. If the patient continues to use the green soap and salicylic acid, he may continue to remain free from symptoms for long periods of time.

INTERNAL MEDICINE

By R. B. Wood, M.D.
Medical Building, Knoxville

A Departure From the Usual In Treating Obesity. Frank A. Evans, M.D., and James M. Strong, M.D. Am. Jr. Med. Sc., Vol. CLXXVII, No. 684.

The writers discuss the reasons for overweight, quoting the metabolic findings of various investigators in obese people, the specific dynamic protein action, the abnormal fat metabolism.

They are of the opinion that the treatment should be dietary and endocrine therapy should not be used.

There is no special food of merit, it being a question of calory reduction. That the proteins must be maintained to keep the patient in nitrogen equilibrium is in accordance with most regimes and the reduction be at the expense of carbohydrates and fats, to gradually reduce the weight.

The authors, instead of giving the usual 14 or 15 cal. per kg. of weight, still further reduced the intake to 6-8 cal. per kg. weight.

In this diet more than enough protein is given to maintain nitrogen equilibrium, 1 gm. of protein per kg. and enough carbohydrate and fat added to give 25 cal. per kg. and in such proportion that the ketogenic—anti. Retogenic ratio is $1\frac{1}{2}$ to 1. "After obtaining these figures for protein and carbohydrate, the menu was made up to fit the figures for protein and carbohydrate and as much fat was omitted as could be, while allowing the desired amount of protein."

Example—Female, age 34, height 64 inches should weigh 60 kg. and have 25 c. per kg. Her diet to maintain all requirements would be P. 60, Ch. 45, F. 120.

The menu is then cut to contain P. 60, Ch. 45, F. 29.

Using the above methods the writers have made their report based on results from 111 patients and summarizing:

Ninety-eight patients on diet 8.75 weeks lost on the average of 3.02 pounds per week.

No ill effects are reported, the only complaints being occasional headache, dizziness, weakness, and occasional nausea during first few weeks. Acetone was found in the urine for weeks but no ill effects were noted. Red and hemoglobin estimations remained constant or increased.

No ill effects were noted at any age or in eight patients with myocardial lesions, in hypertensions. The development of wrinkles did not take place except in case of double chin.

Constipation was a troublesome feature.

Thyroid Deficiency as a Cause of Poor Health.

Dr. J. S. McLester. *Med. Clinics of N. A., March, 1929.*

The author describes the findings of a group of patients who present among various complaints the common picture of easy fatigability, a lowered metabolism and a relief of symptoms through the administration of thyroid extract.

The writer states this group of patients are frequently diagnosed as neurasthenic because of the vague symptoms such as lack of endurance, numbness and vague pain in extremities, joint pains, gastro-intestinal disturbances that do not fit into any definite group. Frequently the complaint of loss of libido is met on questioning.

These patients are not myxoedemics. The facial expression, the skin, hair and overweight are not those of true and heretofore described hypothyroids.

Blood pressure is generally low, pulse slowed and the hearts frequently bottle-shaped. A low grade secondary anemia is frequently present. The metabolism often is 20 to 30 per cent.

The author considers these cases of a transient nature thus differing from true myxedema.

The cause is a matter of conjecture, though the older writers stressed psychic trauma, childbirth, etc., but the author tends to discount this, and tends to believe infections are more plausible, with the possibility of nervous, chemical and other unknown causes affecting the functional capacity of the gland temporarily.

Dosage is discussed, and, of interest is the opinion on pluriglandular feeding and the timely admonition that all persons with that tired, worn-out feeling do not need thyroid extract without knowing the metabolism indicates a lack of the thyroid hormone.

The Behaviour of Renal Sodium Chloride Threshold Under Treatment. **Harris A. Houghton,** in *Med. Jour. and Record*, April 3, 1929.

Sodium Chloride is the only true threshold substance known. The kidneys do not excrete it normally when the concentration in the plasma is less than 56.3 mgms. per 100 cc and the threshold varies but little in health, but may in pathological conditions, be raised or lowered.

The author believes that there is a rough relationship between increased chlorides in the plasma and hypertension in the majority of cases. The application of diet with maximum content of 2 gms. salt daily results in lowering pressure due to the restoration of mineral balance and not necessarily the reduction of salt.

Oral Administration of Adrenalin. **G. Giragosintz and H. Mackler,** in *Endocrinology*, January, 1929.

Using twelve dogs, anaesthetized by ether, the authors administered adrenalin by stomach tube and watched its effect on the blood sugar level. A constant rise is convincing of its absorption through the gastro-enteric Mucosa, though none of the other usual effects of adrenalin were noted. Blood pressure was not affected.

Injections into the jugular gave much greater rises in pressure than injections into the portal vein, thus suggesting the liver is able to remove the pressor effect of adrenalin.

NEUROLOGY AND PSYCHIATRY

By **H. J. Hayes, M.D.**

899 Madison Ave., Memphis

Organic Nervous Disease In Identical Twins. **S. A. Kinnier Wilson, M.D., London, England, and Julian M. Wolfsohn, M.D., San Francisco.**

The authors comment and conclude as follows: The cases of homologous twins described in this paper present the remarkable structural similarities so often previously described. We have emphasized the minuteness of structural likeness even to the finger prints, which in a given pair of homologous twins in our series conform to the same type, although the number of ridges making up the pattern is slightly different in each set. These structural similarities not only were not limited to normal structure, but included various congenital and acquired anomalies, e. g., the congenital absence of the upper lateral incisors and also the presence of only one carious snag—the left upper first premolar decayed to the gingival margin in one set of twins. In another set, there was similarity of position, size and structure of a congenital nevus, a high arched palate, and the presence of goiters of the same size.

We have examined our patients for mirror-imaging of external and internal structures, but have found these to be conspicuously absent.

We believe, therefore, that since homologous twins are the result of cleavage of the fertilized ovum in the earliest stages of development, resulting in the formation of two individuals instead of one, the cells of each twin are endowed with daughter chromosomes of the original combined male and female gametes which must have one and the same inherent structural and physiologic potentialities; furthermore, the functions of organs, especially those of the central and vegetative nervous systems, should show similar capacities and deviations.

In this series, each pair of twins showed a striking equivalence in mental endowment which ranged from normal (cases 3 and 4) to low grade imbecility (cases 1 and 2).

These cases seem to indicate that if structural and functional disease of the nervous system oc-

curs, it affects both twins equally, and not one twin alone. This is true of our cases with organic nervous diseases—epilepsy, congenital nuclear ophthalmoplegia and infantile cerebral palsy.

May not the presence of epilepsy in identical twins serve to strengthen the belief that idiopathic epilepsy has, at least in some cases, a congenital origin?

An observation worthy of note was revealed in the family history of the twins with cerebral diplegia, in which there was the interesting combination of the presence of another case of cerebral diplegia in the paternal ancestry and the occurrence of twinning on the maternal side.

Homologous and fraternal twinning occurred in the families of three of the four sets of twins.

In health, homologous twins show a striking similarity of structural, functional and mental equipment.

When organic nervous disease occurs in homologous twins, it is most probably the result of inherent defects and is always present in both twins.

The same obtains for the presence of anomalies and deformities in identical twins.

An anomaly of development is always similar and equivalent in both homologous twins.

Biologically considered, homologous twins are only one individual; physically they are two.

The Bromide Treatment for Epilepsy In the Dispensary. Oskar Diethelm, M.D., Baltimore.

The author summarizes as follows: There are important advantages in treatment with a combination of phenobarbital and bromide. Phenobarbital controls the attacks, but does not have a specific influence on the epileptic process; its sudden cessation is dangerous. One must realize that most epileptic patients are not dependable and may fail to carry out orders carefully after they have improved. Sudden cessation of bromide intake is less dangerous. The bromide content drops gradually, and the patient will have one or two attacks under the decreased influence of bromide. These signs bring him back to the physician before it is too late.

Treatment is started with slowly increasing doses of bromide, phenobarbital being administered at the same time in an amount which more or less controls the attacks. After having established a sufficient storage of bromide in the body, one tries to keep a constant bromide-chloride equilibrium. This is obtained through determination of the bromide replacement of chloride, according to which one can alter the dosage. A diet low in salt (about 5 Gm. a day) increases the influence of bromide. Observing the effect of the bromide and noting improvement, one may decrease the phenobarbital gradually (1 grain each week) and eliminate it entirely or continue it only in small amounts. The amount of bromide should not be diminished before the patient has been

free from attacks for one or two years, and the patients should stay under observation for several years.

Clinical Phenomena Associated with Depressions, Anxieties and other Affective or Mood Disorders. By Lloyd H. Ziegler, M.D.

Ziegler summarizes as follows: Normal health, joy and happiness come from satisfying experiences with environment. Grief is associated with thwarting and unpleasant events. It is a prevalent concept that emotions result from a response to some stimulus or external provoking circumstance, and that catastrophe and misfortune are necessary to induce distressing emotions. There are persons in whom sadness, anxiety, depression, elation and feeling of extreme well-being seem to be almost entirely of endogenous origin. Such a person once beset by a distressing emotional state, and finding no exogenous cause for it, reacts to it in various ways, among which is a vigorous and ceaseless subjective search for its cause. He may search his past for transgressions. If he has somatic distresses, which are frequently associated with anxiety and depression, he may solicit the services of a general practitioner of medicine to hunt for a diseased organ. If an organic lesion is found it may prove disappointing to the patient and physician to expect relief too soon from the mere treatment of the lesion. If an organic lesion is not found, it is equally disappointing to the patient to be told that his trouble is imaginary, or that he has nothing wrong with him. Depending on the locus of the most vigorous complaints, diagnoses such as nervous dyspepsia, gastric neurosis, cardiac neurosis, and sexual neurosis may be made. If, because of such diagnoses, all therapeutic efforts are directed toward supposedly diseased organs, the sorely miserable personality as a whole may continue to struggle and search for relief far and wide, in and out of the medical profession.

The distress of the personality as a whole, while showering many complaints on some part of the body, varies greatly from one person to another, and may be expressed in unusual terms, out of the inherent tendencies and life experience of the patient. Abnormal physiology (probably part of the emotional distress) further tends to disrupt the well-being and functioning capacity of the patient as a whole. Insidious chemical and immunologic changes associated with anxiety and depression, doubtless favor metabolic disease, as well as infectious invasions.

The dichotomy of life into mind and body, observed by Plato, has retarded our knowledge of the biologic reactions of man. Thoughts and feelings are as much a product of a patient as the gastric secretions or the pulse rate, and should not be studied in a detached fashion. The study by internists and psychiatrists of the intimate

clinical course of patients emotionally sick, should throw much needed light on the distresses of persons so discouragingly free from the kind of lesions that are amenable to surgery or medicine, but which, in many cases, pass away spontaneously in the course of psychotherapy and the readjustment of life. To explain all the abnormal feelings of patients by organic lesions would be as futile as the hope of explaining the migratory tendency of birds from information obtained by dissecting their wings.

Some Factors in the "Mechanical Theory of Epilepsy," with Especial Reference to the Influence of Fluid, and its Control in the Treatment of Certain Cases. By Temple Fay, M.D. Fay Summarizes as Follows:

The mechanical theory of epilepsy has had many exponents in one form or another. Among the firm believers that some extra cerebral factor was concerned, we need only mention Kocher who looked upon increased intracranial pressure as perhaps the cause. Alexander favored increase in fluid over the cortex. Dandy has insisted that there existed some organic basis for the attacks. Elsberg and Pike considered the importance of increased intracranial pressure and suggested that decrease in intracranial pressure consequent upon the diminution of fluids taken might explain the relief seen in starvation. Foerster considers pressure and increased fluid as a factor associated with irritation from arterial pulsation. Mixer suggests the probable underlying cause being due to the failure of subarachnoid fluid absorption. Lind believes compression cerebral anemia to be the cause of seizures in the presence of intracranial pressure. "In the case of the epileptic and the epileptoid the presence of the predisposing heredity, the peripheral irritation or toxemia causes an increased irritability of the cerebral cortex which requires only the extra stimulation of the pulse beat upon an already compressed cortex, to produce the same effect as a mechanical irritation of the cortex. In many of the epileptics, in addition to this, there are sclerosed areas which will not expand, and when the brain increases in size under the influence of the increased blood supply, these sclerosed areas cause a certain degree of puckering which also acts as a mechanical irritation."

Swift believes that constriction due to distortion of the large venous outlets (sigmoid and lateral sinuses) may produce congestion of the venous flow from the cortex, and disturbance of cerebro-spinal fluid absorption, with consequent backing up and fluid pressure. He has shown distortion of these structures and abnormalities in their development.

It is impossible because of our meager knowledge concerning many of these points to do more

than indicate the factors which may be concerned in the mechanical consideration of this subject.

The outlook, however, seems hopeful, with such a wide field of investigation now opening before us, to determine the significance of these new and unexplored considerations.

The addition of two new facts that may modify in part as well as further substantiate this theory have been presented in this paper. (a) The establishment of a characteristic as well as variable pathology demonstrable in the Pacchionian bodies in 150 brains so far studied for me by Dr. N. W. Winkelman. (b) The fact that prolonged dehydration may be carried out on certain patients for a period of a year without deleterious effects to their general health and that in the presence of this controlled dehydration this small group of patients suffering from generalized convulsive seizures with loss of consciousness have become attack free and have remained so, as long as the fluid intake restrictions established for them have been maintained. Those suffering from slight attacks or petit mal have not been benefited.

No conclusions can be drawn from such a small and selected series of cases covering such a relatively short period of time. At present, our knowledge is too inadequate on many of the fundamental points involved to permit of more than the assumption that dehydration which has yielded certain results in those cases where it has been established may find a wider application in the convulsive state as a whole.

OBSTETRICS

By James R. Reinberger, M.D.
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Experiences In the Management of Pregnancy Complicated by Heart Disease. Harold E. Pardee. American Journal of Obstetrics and Gynecology, January, 1929.

His observation of cardiac patients dates back to 1922 when there was a cardiac clinic established in conjunction with the obstetrical clinic of the Lying-In Hospital and Woman's Hospital. His idea probably originated from the ideas of Mackenzie, who stated that the prognosis of heart disease complicating pregnancy should be based on the physical signs of compensation rather than the pathologic condition of the valves or myocardium.

For study he adopted the same classification as used by the New York Heart Association, which is based on cardiac functional activity:

1. Those who are able to perform ordinary and usual physical activity without signs of fatigue, palpitation, or dyspnea.

2a. Those who are able to perform the usual normal physical activity, but who have discomfort

in doing so, as slight shortness of breath on exertion.

2b. Those who are unable to perform the more difficult features of ordinary physical activity without stopping on account of fatigue, shortness of breath or palpitation.

3. Those who are unable to perform the simplest physical activity without fatigue or shortness of breath or palpitation.

The test exercise used to determine this is the swinging of a ten-pound, or five-pound dumbbell in the smaller person. Should she be able to do this twenty to twenty-five times with a rapid return of the pulse-rate and dysnea to normal, she is considered normal. If the reaction is excessive she is classified as 2a or 2b. If the patient cannot perform this exercise on account of palpitation or dysnea, she is classified as 2b. If she is unable to perform more than five or six of these swings, she is classified in class No. 3.

He reported 106 patients all having rheumatic valvular disease, except two who had congenital hearts. Twenty-nine were diagnosed as mitral insufficiency. Sixty-four with mitral stenosis. Eleven aortic insufficiency, and three of these probably mitral stenosis. One congenital patient inter-ventricular septum, the other patient ductus arteriosus.

According to the functional classification, 75 fell into class No. 1; 20 into class 2a; 11 into class 2b. In addition to these, there were six other patients who were seriously decompensated, three of them with pulmonary edema. These were classed as No. 3 patients. Five with mitral stenosis and one with aortic insufficiency. He stated that the mortality in this group is extremely high, but had they been observed as the above, the outcome would have been much better.

Cardiac enlargement has been emphasized by some as an important feature for deciding upon the function ability of the heart, and especially the ability of the patients to stand the strain of labor, and to him it would seem to be so, for cardiac enlargement was more than slight in eight (73 per cent) of 11 patients who were rated in class 2b, and who were definitely limited by shortness of breath, and in only 12 (18 per cent) of the 64 patients in class No. 1 who had no cardiac symptoms. There was 20 per cent enlargement in class 2a. He stresses, however, that this is not always a reliable guide, as there were two patients with marked enlargement, and still no symptoms (class No. 1) and 10 patients with moderate enlargement.

His experience with this series gives added weight to the idea that functional diagnosis of the cardiac patients is the most satisfactory available guide to the prognosis of pregnancy. Of the 75 patients diagnosed as class No. 1, 60 entered the hospital, and there was no cardiac embarrassment during labor. There was one death due to

pneumonia. Of the 19 patients diagnosed as class No. 2, 12 entered the hospital for delivery, five went through labor uneventfully; three showed a slight increase in pulse rate and respiration, but all made a prompt recovery within 24 hours. The remaining number were helped out and suffered no ill effects, with the exception of one, who developed an embolus of the popliteal artery, and amputation was necessary. She made a good post-operative recovery, but died on the 26th day post-partum. Of the 11 patients diagnosed as class 2b, three were uneventful, two had slight cardiac embarrassment, two were re-admitted to the hospital and reclassified from class 2b to class No. 3. One died from hysterectomy on the second day, the other had a hysterectomy at the third month of pregnancy and recovered. There were two patients delivered by Caesarian Section with prolonged labors, showing some cardiac embarrassment.

He advises a short first stage and second stage of labor to avoid severe strain on the heart, and states that in the management of pregnancy complicated by cardiac disease that does not improve under two or three weeks of treatment, that it should be interrupted. He states that gas anesthesia should be avoided, and that chloroform and ether is very well borne. And his final gist is that nearly all of his patients do well, with the exception of class No. 3, but much can be done to prevent the patients in class 2a and 2b from becoming markedly decompensated.

OPHTHALMOLOGY

By Robert J. Warner, M.D.
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Examination of School Children in Great Britain. *Lancet*, 1929, January 12, p. 96.

The report of the chief medical officer to the Board of Education (Great Britain) for 1927 indicates that about two million children are inspected every year, requiring the services of two thousand doctors, six hundred dentists, and nearly five thousand nurses. About one-fifth of those examined need some medical treatment. Defects of sight are about one-third of the total number of defects. About ten per cent of all children need visual correction. During the year eight additional ophthalmic specialists and fifteen new ophthalmic clinics were provided. There is almost universal agreement as to the tonic value of light on tired and languid children. The blind children ascertained during the year numbered 1,925, and the partially blind 4,929. There is no sign of diminished incidence of physical defects; although the general physical condition, as shown by physique, health, nutrition and cleanliness, tends steadily to improve. The lack of effective teaching of hygiene is the weakest link in the whole chain of child welfare. Hygiene must not only be taught, but must also be practiced every day.

Cataract Operations in Diabetics: Results in Seventeen. Roderick O'Conner. Trans. Pacific Coast Oto-Ophth. Soc., 1928, April, p. 92.

Seventeen cases are reported to demonstrate that there should be no hesitation in operating on cataracts in diabetics provided thorough precautions as to preliminary general examination, elimination of all foci of infection, reduction of urine and blood sugar, and prevention of infection are taken.

Needling was the operation of choice in six patients (18 to 38 years of age), simple extraction in three, combined extraction after preliminary iridectomy in eight. Mechanical results were excellent in all but one. Visual results were 20/25 or better in 12 cases, and 20/40, 20/80, 3/50, and 0 in the remainder.

The Vascular State and Glaucoma. F. Phinizy Calhoun, M.D., F.A.C.S. American Journal of Ophthalmology, April, 1929.

Of a series of sixty-four cases of glaucoma, ninety-five per cent were found to present vascular disease; and of the vascular cases fifteen per cent had syphilis, forty per cent had nephritis, forty-two per cent had abnormally high systolic pressure, fifty-seven per cent had an abnormally high diastolic pressure, and sixty per cent had dilatation of the heart or of the aorta. The author favors the belief that glaucoma may be due to disease in the vascular tunics of the eye.

The Lens With a Double Focus. Hans Gaiser. Graefe's Arch., 1928, v. 121, p. 145.

Brief histories are given of nineteen individuals, having twenty-eight eyes each of which contain a lens with double focus. Examination of these twenty-eight eyes with the slit-lamp showed the term "colic" infancy is accepted as a diagnosis changes in the nucleus and an unaffected cortex. The double focus is therefore explained by increase of the refractive index at the nucleus. In all these cases myopia was present; in eleven cases an increase of myopia had occurred in the previous eight to forty-eight months. In one case the difference in refraction between the central and peripheral part of the lens amounted to 27.00 D. Refractions after operation in four cases demonstrated that the previous myopia had been confined to the lens.

PEDIATRICS

By John M. Lee, M.D.
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Practical Points In the Feeding and Care of Infants. McKim Marriott. Journal Missouri State Medical Association, September, 1928.

Any form of feeding, in order to be successful, must meet the following requirements: 1. It must provide sufficient calories. 2. It must contain a certain minimum amount of fat, protein, carbo-

hydrate, mineral salts, and the four vitamins, A, B, C, and D. 3. It must be free from any considerable number of bacteria. 4. It must be capable of digestion by the infant in the amounts given. Breast milk from a healthy mother fulfills all the above requirements for the normal baby. The caloric requirements of the normal infant rarely exceeds 50 calories per pound of body weight per day. An undernourished infant will not thrive unless he receives almost as many calories as the normal infant of the same age. The second requirement is that the diet should contain the essential elements in sufficient amounts. These are met if the infant receives 1½ ounces of cow's milk per pound of "expected" body weight per day, or one-tenth of the body weight. The proportion between milk and sugar is of importance, being approximately 11:1. Additional A and D vitamins should be supplied in the form of cod liver oil, one-half teaspoonful three times a day during the first half of the first year, and one teaspoonful three times a day afterward. One or two tablespoonfuls of orange juice given daily will supply the necessary vitamin C to all artificially fed babies. A simple way to make up the formula for the first year consists in mixing evaporated milk with an equal volume of acid sugar solution. A satisfactory, and also the cheapest, form of sugar is karo corn syrup. The routine formula for acid-sugar solution is prepared as follows: Karo corn syrup, six tablespoonfuls; lactic acid, U. S. P., one teaspoonful, and water to make one pint. This formula is usually the one for babies from six to eight months, and it is equal to whole lactic acid milk with approximately 10 per cent of sugar. The fuel value is 30 calories per ounce. Dysentery infection is not as frequent a cause of diarrhea in the North as in the South; a more frequent cause in the North is parental infection, especially middle ear conditions. If the infection causing the diarrhea can be found and treated, it is not necessary to change the feeding. Donnelly. Arch. Pediatrics.

Significance of Abdominal Pain in Early Life.

Paul W. Beaven, M.D., Archives of Pediatrics. April, 1929.

In addition to the usual medical and surgical conditions that give pain in the abdomen, there are conditions peculiar to infancy and early childhood that produce this symptom, and its interpretation is often most difficult. Too often the term "colic" infancy is accepted as a diagnosis and its cause is not determined and removed. Hunger is the most frequent cause for this symptom during infancy, and it is relieved by an increase of food. The same cause may produce colic in older children. Overloading the stomach with food is a rare cause for pain in the abdomen, if the diet is reasonably proportioned, however when a child takes one kind of food to excess, pain frequently results.

Raw milk will give pain to some babies who take boiled milk in comfort, the heat modifying the milk protein so that it is more readily digested. The average amount of fat or sugar in the formula gives pain to some infants. The thick cereal feedings used in pyloric stenosis often produce abdominal distress after each feeding. In some cases a longer cooking of the formula, one or two hours, relieves the symptom, while in others, a change from wheat cereal to rice is necessary to obtain comfort. A case is cited of a baby on lactic acid milk having abdominal distress after each feeding. When the milk was acidified with lemon juice the pain ceased.

The hypertonic baby who is hyperirritable and in whom gastrointestinal discomfort predominates is relieved by atropine. This condition may be seen in children up to the age of puberty, and in them atropine is also a specific. Constipation with an accumulation of hard feces in the lower bowel will give abdominal pain, especially if there are rectal fissures or a congenitally small anus.

Parenteral infections are frequently accompanied by or followed by abdominal pain in many children. This is most frequently seen with pneumonia, scarlet fever, measles, the so-called intestinal grip and other respiratory infections. Breneman has emphasized the frequency with which colic occurs in respiratory infections and thinks the pain in these cases is due to inflammation of the abdominal lymph nodes.

ROENTGENOLOGY

By C. M. Hamilton, M.D.
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The Relationship of Gastric Ulcer to Gastric Carcinoma. Merle R. Hoon, M.D., and John Day Garvin, M.D. Radiolo, April, 1929.

The malignant possibilities of a gastric ulcer are unsettled, and cause a great deal of discussion, pro and con. Some are of the opinion that an ulcer of the stomach rarely becomes malignant. Others feel that an ulcer is a potential cancer in almost every instance.

MacCarty says there is no positive or negative evidence that a gastric ulcer ever undergoes malignant change. No experimental evidence is available.

The following case report is submitted which may throw some light on the cancer-ulcer question.

A woman, age 60, who had complained of attacks of burning epigastric pain, appearing three or four hours after meals. It was relieved by food and alkalis. She had lost 22 pounds in three months. Present weight was 91½. Physical examination was negative. Urinalysis was negative. Blood showed a secondary anemia. The gastric contents at the end of one hour showed a

total acidity of 22 and free hydrochloric of 16. The total content was 50 cc. Fluoroscopic and radiographic examination revealed an ulcer on the lesser curvature of stomach which was rather high. The diagnosis of gastric ulcer was made. It was probably malignant. A recheck examination confirmed the diagnosis. The malignant possibility could not be determined. The age of the patient, loss of weight, and low acidity suggested a malignancy. The patient refused operation. Under medical treatment, she improved for three weeks, gaining three pounds in weight. Six weeks after the original examination, a large perforating ulcer was found by X-ray examination, at the site of the previous ulcer. The rapid growth was strong evidence of malignancy and operation was insisted upon.

At operation, the lesion was found high on lesser curvature and attached to pancreas. No gross evidence of metastasis could be found. Two-thirds of stomach was excised and an anterior Polya anastomosis was done. Grossly the ulcer was benign. A definite diagnosis of malignancy was made microscopically. This was confirmed by Broders, of Mayo Clinic, and put in "Grade 4 Carcinoma." No glandular involvement could be found. The patient made an uneventful recovery. She gained ten pounds and was apparently well at the end of eleven months.

Comment:

The chronic gastric ulcer undergoing malignant change and the ulcerating cancer in its early stage reveal gastric carcinoma in its most hopeful aspect. Practically every gastric ulcer should be considered as potential malignancy. This case offers an opportunity for cure, because early intervention was instituted. It is impossible to determine whether this ulcer was malignant from its inception or whether it had undergone degeneration.

Therefore, it behooves us to consider all gastric ulcers with suspicion. The patient should be kept under strict supervision. Early removal of carcinoma is very satisfactory. All cases of "indigestion and dyspepsia" in the cancer age should receive exhaustive investigation.

The dictum of McVicar is quoted, "The medical management of gastric ulcer must always be undertaken with a forbidding doubt."

SURGERY — GENERAL AND ABDOMINAL

By John L. Dies, M.D.
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Strictures of the Common and Hepatic Bile Ducts. Walters-Waltman. Surgery, Gynecology and Obstetrics, March, 1929. Vol. XLVIII, No. 3, pp. 305-313.

It has been shown by various observers that inflammation of the intrahepatic and extrahepatic biliary passages is associated with strictures of the

common bile duct, and in many instances, may be the predisposing factor to the development of the stricture. This factor, too, may account for the frequency with which incomplete intermittent obstruction occurs subsequent to plastic operations for the relief of strictures of the common or hepatic bile ducts in some cases.

A report of 17 cases of stricture of the common bile duct in which operation was performed during the last four years is presented with a description of the technique used as well as the progress in the months and years subsequent to operation. The operation of choledochoduodenostomy with an end to side or a side to side anastomosis, with an accurate union of the mucous membrane of the duct to that of the duodenum, has proved to be the most satisfactory operation of the group. With this method excellent results have been obtained over a period of many months and in one case, of more than two years.

The successful treatment of stricture of the common bile duct and the hepatic duct is dependent on the fact that sufficient duct remains proximal to the stricture to permit accurate anastomosis to an opening in the duodenum, as well as that of a minimum amount of infection exists in the walls of the intrahepatic biliary passages.

In one case, in which there was a very large anastomotic opening between the duct and the duodenum, severe cholangitis developed two or three months following the operation in the absence of extrahepatic biliary obstruction. It was accompanied by progressive enlargement of the liver and spleen and the formation of ascites. With the subsidence of the intrahepatic infection, jaundice and fever disappeared, but the enlargement of the liver and spleen still persisted. The ascites, however, disappeared after the administration of a mercurial diuretic.

A case is reported in which the establishment of an external biliary fistula for complete stricture of the common and hepatic ducts, and the transplantation of the coned out fistulous tract into the duodenum was followed by a good recovery with relief of symptoms. The fistula was transplanted March 13, 1928, and the patient has been free of symptoms since. Six other successful cases of this type are reported in the literature.

Tannic Acid Treatment of Burns. Beekman, Fenwick, *Archives of Surgery*. No. 18, Pages 803-806. March, 1929.

Four hundred and thirty-four patients suffering from burns were admitted to the Children's Surgical Service, Fourth Division, Bellevue Hospital, between June, 1919, and August, 1928, a little more than nine years. Most of the burns were severe; of second and third degree intensity and involved more than 10 per cent of the surface of the body. The ages of the patients varied from a few weeks to 12 years.

The causes of the burns were equally divided between moist (scalds) and dry heat. Scalds were more numerous in children under 6 years of age, while burns from dry heat were seen more often in the older children.

In this series of cases, 320 of the patients were treated prior to November, 1925, and 114 after this date. The type of treatment used in the first group varied in detail. The open treatment of the wound, by means of the hot air tent, was used in all cases: in a few, paraffin was applied to the wound, and in many sodium bicarbonate baths were employed. The 114 patients in the second group were treated by the tannic acid method. In both groups the fluids were forced, though in the last two years this treatment has been carried out earlier and more intensely.

The conditions present in the two groups were similar, the types of burns did not vary and the ages of the patients appeared to be equally scattered. The number of cases in each group was large enough to make a comparative study fairly accurate.

In the first group there were eighty-nine deaths, a mortality of 27.8 per cent, and in the second group, seventeen died, a percentage of 14.9. In the first group, there were eighteen deaths, within twenty-four hours, presumably from shock, 5.6 per cent of the total number of patients in the group; in the second group, there were six deaths, 5.3 per cent. From the second to the tenth day inclusive the period of toxæmia, there were fifty-seven deaths in the first group and six in the second, a mortality of 17.8 per cent for the former and only 5.3 for the latter. Fourteen deaths occurred after ten days in the first group, 4.4 per cent, and five in the second, a percentage of 4.3. During the first twenty-four hours, the percentage of deaths was about the same in the two groups. As death at this time is usually due to shock, it is evident that the tannic acid treatment will not affect its outcome.

Apparently, toxæmia develops rapidly after the inception of a burn, and in the majority of patients who die from it, the fatality results within seventy-two hours. If the absorption of the toxins is prevented immediately, many of these deaths can be avoided. Apparently, the tannic acid treatment does this, thereby reducing the number of deaths in this period by three-fourths (e. g., from the end of twenty-four hours to the end of seventy-two hours, first group, 10.8 per cent; second group, 2.4 per cent) and by two-thirds in the period of time between the end of the first and tenth days.

In the period following that of the toxæmia, the death rate in the two groups is the same. Deaths during this period are due to sepsis, pneumonia and malnutrition. Although the decrease in the mortality rate from treatment with tannic acid is not apparent, it is probable that large percentage of persons with severe burns, who for-

merly would have died from toxæmia, live to reach this later period and are consequently subject to infection and malnutrition; some of them succumb to these conditions.

In the two groups, the average number of hospital days for patients with burns shows a longer stay of six days for those treated with tannic acid. It is probable that the increase of time in the hospital for those treated by tannic acid is due to the fact that those with severe burns who formerly would have died lived, but required a longer period of time to recover.

In addition to the facts stated, it is my observation that the tannic acid treatment produced more rapid healing in the second degree burns, that in the third degree burns the granulation tissue of the wound was in the most suitable condition for skin grafting immediately after separation of the tanned eschar, thereby promoting early healing and lessening of the formation of scar tissue, and that there was less pain to the person suffering from a burn treated by tannic acid than to those treated by one of the methods formerly used.

The technique of the tannic acid treatment, as carried out on the Children's Surgical Service of Bellevue Hospital, is similar to that laid down by Davidson in August, 1925, with the exception that a 5 per cent solution has been used and the same solution has been applied to burns of the face, instead of the tannic acid ointment, without injurious results to the eyes.

Recently, in the treatment of patients, particular attention has been paid to the early administration of fluids in order to prevent blood concentration. It is easier to prevent that condition than to cure it. The most effective manner of administering the fluids is by hypodermoclysis of a 5 per cent dextrose solution. Additional fluids may be given by mouth and rectum. A good working rule is that in twenty hours a patient should take at least one liter of fluid for every 25 pounds (11.3 kg.) of body weight.

Opiates should be used sparingly, as their action of lessening secretions is a contraindication of their use.

The tannic acid method of treating cutaneous burns is the most satisfactory treatment so far advocated.

Changes in The Intestinal Flora After Gastro-Enterostomy and Partial Gastrectomy. Bernard Portis, M.D., Ph.D., Chicago. Surgery, Gynecology and Obstetrics. Vol. XLVIII, April, 1929, No. 4.

(1) The upper intestinal flora in dogs is markedly changed after subtotal gastrectomy and gradually assumes the faecal character of the lower intestine.

(2) Gastro-enterostomy does not materially alter the bacterial flora of the intestinal tract.

(3) Alteration in the intestinal flora after the

partial removal of the stomach is probably due to the loss of the bactericidal activity of the stomach through the establishment of an achlorhydria, partly to the more rapid emptying time of the stomach, and finally, the alkaline medium of the jejunum greatly predisposes to the further multiplication of its bacterial contents.

(4) A clinical deduction may be drawn in that, although partial gastrectomy seems to be the best operation in certain cases of ulceration of the stomach and the duodenum, a new factor is introduced with the faecal change of the upper intestinal flora. The results of this alteration in the general body physiology will take many years to establish.

UROLOGY

By Tom R. Barry, M.D., F.A.C.S.,
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Conservative Kidney Surgery. Lower, L. E., and Belcher, G. W. (Am. J. Surg., 1928, V. 191). (Abstracted by Louis Gross, S. G. & O., Vol. XLVIII, No. 3, March 1929.)

Lower and Belcher state that with increased pre-operative knowledge of the problems presented by pathological conditions of the kidney, renal surgery is becoming more conservative.

In the presence of pyelonephritis, infected hydronephrosis, and ureteral obstruction, surgical intervention has been replaced either completely or in part by the use of the ureteral catheter.

In a case of moderate hydronephrosis, ureteral dilatation and kidney lavage removed the infection and reduced the retention. When the patient was last heard from, almost three years later, he was apparently quite well.

Nephrotomy is now generally avoided if the condition can be treated effectively by pyelotomy.

In the removal of a large stone through a pyelotomy incision, the ureter may be accidentally torn loose from its attachment to the renal pelvis. If this occurs, anastomosis should be performed. In no instance has there been any serious after-effect from this procedure.

An attempt should be made in all purulent cases to reduce the infection as much as possible before operating, especially if a nephrotomy is to be done later. In some cases, such as those with a large infected hydronephrosis and little remaining renal tissue in which a secondary nephrectomy is to be performed, and those in which there is moderately good renal function and the emergency operation is precipitated by ureteral obstruction rather than by extensive infection in the renal cortex, the infected kidney may be drained satisfactorily by pyelostomy.

In the authors' opinion, it is inadvisable to deliver the kidney through the wound for the removal of a calculus from the pelvis since in most instances it is possible successfully and safely to

carry the operation to the kidney. Even when the stone lies in the tip of a long calyx, it is probably better, if the size of the stone permits, to do a nephrotomy without delivering the kidney.

It has been shown that while a half of the kidney is quite sufficient to maintain life, such limitation in the amount of kidney tissue is a serious handicap. When the removal of one kidney and half of the other is necessary, the complete nephrectomy should be performed first so that the kidney to be resected can receive the benefit of compensatory hypertrophy before its diseased half is resected.

In conclusion, Lower and Belcher say that renal surgery has gone through a number of phases. At first, it was quite conservative. Later, it became radical, and now it is again becoming conservative. The authors believe that the treatment of renal lesions should be conservative whenever possible. In support of this view they cite the results obtained in a number of cases in which the only treatment was ligation of the accessory vessel obstructing the ureter. Two of the patients are entirely well, 16 and 19 years respectively after the operation. Cases in which the removal of part of a kidney is done constitute the most radical test of conservatism. Renal resection should be performed only after very careful consideration of all of the findings in the case. In all cases in which the amount of kidney tissue is subnormal because of disease or operation, it is essential that the patient follow a rigid routine.

Two Unusual Penile Injuries. Ehrich, Wm. S. (*Journal of Urology*, Vol. XXI, No. 2, February, 1928).

Ehrich adds two important cases of penile injury to the few that have already been recorded. After searching the literature for reports of this type of injury he finds only one case recorded in civil life. Only 30 cases of gunshot wounds were collected in the Civil War. Young compiled 43 injuries during the World War. He attributes the scarcity of such wounds partly due to their being considered of little importance by physicians, yet he believes that this organ is somewhat seldom injured.

He reports the following:

Case 1: Was a man aged 60 who, because of a slight abrasion on penis, was sent in with a dressing held in place by a rubber band around penis. The bandage slipped off during the night and next morning the penis was swollen. The swelling continued for several days when urine began to drip from a crease around penis. On opening the crease the black rubber band was found but not until a fistula was formed, which necessitated bladder drainage and plastic operation on urethra. Patient made a complete recovery.

Case 2: Patient received an injury by a circular

saw completely denuding penis and severing it behind the sulcus except for small strand of tissue on dorsum. Both testicles were uncovered and the left entirely removed from scrotum. The left testicle had to be removed because of great amount of injury. The distal or sawed off portion of penis was sutured in place over a catheter, the fibrous coverings replaced, and a slip graft of skin for the penis taken from scrotum. Circulation was promptly re-established and patient made an uneventful recovery. Two years later examination showed an apparently normal penis, except for slight narrowing of urethra at site of injury. Function was good since the man had since become a father.

Medical and Surgical Problems in Prostatic Obstruction. Young, H. H., *New England J. Med.*, 1928, CXCIX, 859. Abstracted by Carl R. Steinke, M.D., in *S.G. & O.*, Vol. XLVIII No. 4. April, 1929.

The active part played by the trigon in micturition explains the trigonal hypertrophy associated with median bar prostatic growths. The muscles of the trigon become hypertrophied in their effort to pull the growth down and open the internal sphincter.

Prostatic hypertrophy is associated with carcinoma in 10 per cent of cases. Frequently the carcinoma is not found in the enucleated prostatic mass because there has been no invasion.

The author recommends sacral or caudal anaesthesia for prostatic surgery. He injects a 3 per cent solution of procain or novocain into the epidural space, introducing the needle by way of the sacral notch. He states that in the radical operation complete urinary control may be preserved by anastomosing the bladder with the stump of the urethra and preserving the nerves to the triangular ligament, thus keeping the external sphincter intact. Of twenty-seven patients upon whom the radical operation was performed by Young, 62 per cent were living and without recurrence five years after the operation.

In cases with congenital valves of the verumontanum associated with enlargement of the ureters and hydronephrosis, the punch operation is very effective. For such cases Young uses a miniature punch. Most infants with this condition are uremic and require the same careful pre-operative treatment as adults with obstruction.

The chief factor in the mortality of prostatic obstruction is infection. In the control of infection, mercurochrome injected intravenously has been found effective. Except in fulminating cases in which large doses are given, 10 c. cm. of a 1 per cent aqueous solution per 100 lb. of body weight are injected.

The Structure of Testicular Grafts Four Years and Five Months Old. Retterer, E., and Alexandescu, G. J. *d'urol. Med. Et. Chir.*, 1928, XXVI, 113. Abstracted by Audrey G. Morgan, M.D., in *S. G. & O.*, Vol. XLVIII, No. 4.

A Russian engineer met with an aviation accident which disabled him for seven years. During the last two years he became sexually impotent. On January 6, 1924, Voronoff grafted four pieces of chimpanzee testicle into the tunica vaginalis. After this operation the patient was able to resume his work and his sexual function was re-established. At the beginning of the fifth year, his condition began to deteriorate again, and on June 4, 1928, another transplantation was performed and the first grafts were removed for histological examination.

The transplanted pieces of testicle had somewhat decreased in size. Their structure was completely changed. The central part constituting the greater portion of the graft had become necrotic. The cortex had survived and had become vascularized for a depth of from 0.5 to 2 mm., but the original tissue was changed. In some of the tubes the epithelial lining had become reduced to a single layer of flattened cells. Other tubes had become cords. The latter were made up of sev-

eral layers of cells arranged concentrically around the axis of the cord. The cells consisted of cytoplasm containing several nuclei (connective tissue in the first stage of development). The tubes had very fine lumina which were either totally empty or filled with detritus of epithelial cells with pyknotic nuclei. The walls of some of the tubes were made up of connective tissue in the first stage of development and those of others of connective tissue in the second stage of development (fibrous) like that of the stroma between the cords and tubes. Accordingly, epithelial cells of the seminiferous tubules and the intertubular tissue had not only survived in the cortex of the graft but had developed into dense connective tissue.

For survival, the graft must be grafted into suitable surroundings (serous or vaginal) and the flaps must not be more than 4 or 5 mm. thick so that the plasma and fluids of the host may penetrate them throughout to assure survival of the cells until the blood vessels develop in the grafts. As long as there is epithelium with young connective tissue resulting from this transformation, the graft will have a general action on the organism. This action may continue for four or five years.

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CARCINOMA OF THE RECTUM IN YOUNG PERSONS*

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CARCINOMA of the rectum and colon occurs more commonly than carcinoma anywhere else in the alimentary canal. It is questionable whether its present-day recognition represents an actual increase in carcinoma in this situation or whether it is the direct result of better general examination, and response to propaganda urging earlier recognition of symptoms with consequent request for earlier treatment. We believe that a great deal has been accomplished by numerous agencies which continually supply the laity with facts relative to the first recognizable symptoms of malignancy in any portion of the body, and that as a direct result more patients are seeking treatment earlier, and before the growth has progressed to the point of inoperability. The curve in the Section on Surgical Pathology of The Mayo Clinic shows that growths are being operated on now in an earlier stage of their development, and statistics indicate that duration of symptoms before operation, although pitifully long at present, is in reality being shortened slightly.

In large series of cases of carcinoma of the rectum, one is struck with the number in persons aged thirty years or less. The incidence of carcinoma of the rectum in these young persons is probably proportionately higher than the incidence of carcinoma invading all organs of the body and occurring in persons of the same age. Von Glasser, for instance, reported an incidence of 3.5 per cent below the age of thirty, in 527 cases of carcinoma occurring in all areas of the body. However, Williams, reviewing the reports of 11,934 cases of carcinoma in general, found a lower percentage, 0.99 per cent, in persons aged thirty years or less. The incidence of carcinoma of the rectum in persons aged thirty years or less who registered at The Mayo Clinic, in the years 1907 to 1926, inclusive, was found to be 3.85 per cent; this is almost identical with Von Glasser's report for carcinoma in general for youthful patients, but still an astonishingly high figure when one considers how infrequently malignant conditions, with the exception of sarcoma, are supposed to occur in the earlier decades of life. The figures in the three series, however, are so relatively comparable that they indicate the importance of not underem-

*Read before the Tennessee State Medical Association, Jackson, April 11, 1929.

phasizing the occurrence of carcinoma in young persons, and the necessity of abandoning the expression "cancer age" which so frequently dulls suspicion of such lesions in young patients and lulls them into a sense of false security, resulting in tardy diagnosis, and institution of treatment after the optimal period for it has passed.

From 1907 to 1926, inclusive, 1,452 patients with carcinoma of the rectum were operated on at The Mayo Clinic. Of these, fifty-seven were aged thirty years or less. The distribution of ages of incidence among these young patients was as follows: two patients were aged eighteen years, the youngest patients in the series; two patients were aged nineteen and twenty-one years, respectively; two patients were aged twenty-two years; three, twenty-three years; one patient, twenty-four years; three patients, twenty-five years; three, twenty-six years; eleven, twenty-seven years; eight, twenty-eight years; fifteen, twenty-nine years, and seven, thirty years. Younger patients have been reported by other observers as harboring carcinoma of the rectum. Hines' case of a child aged eight years, and those of Milne and Allingham in children aged twelve years are well known to all surgeons. Mummery cited a case of carcinoma of the rectum in a girl aged fifteen years, the youngest patient in his series, and he mentioned Parkinson's case of carcinoma of the sigmoid in a child aged five years. Mayo-Robson also has reported a case of carcinoma of the colon in a child aged fourteen years. This emphasizes that investigation of rectal symptoms in youthful persons, as well as in the aged, should be rigidly undertaken with full knowledge that youth does not preclude the possibility of a malignant condition being present.

A critical study of this small series, which represents such a small percentage of the total, was undertaken with the idea of attempting to find out whether there were any outstanding differences symptomatically, clinically, or pathologically, between carcinoma of the rectum in young persons and in a group composed largely of persons who usually are conceded to be in the cancer age, namely, those beyond forty years of

age. Furthermore, it was desired to know whether the method of treatment applied as a routine to the carcinomas of this field should be supplemented or changed in any way. Prognosis likewise was considered because there has always been prevalent the idea, with considerable evidence to substantiate it, that malignant lesions were more rapidly-growing in young persons and proved fatal in a greater number of young than elderly persons. We were able to compare the grading, end-results, and types of malignancy with a series recently reported by Rankin and Broders, from which a number of conclusions seem to have been well established.

Little was demonstrated to indicate that there was any difference in the symptoms of carcinoma of the rectum in young persons and those of more advanced age. In The Mayo Clinic the average duration of symptoms of carcinoma of the rectum before patients seek medical advice has been found to be eleven and seven-tenths months. In this small series of rectal carcinomas in patients aged thirty years or less, the average duration was nine and three-tenths months. This shows that either these young patients called attention to the growths at an earlier period or that the growths compelled attention because of more noticeable and evident symptoms. In carcinoma of the rectum, bleeding is the most constant sign, and yet an uncertain one. Fresh blood in the stool or on the stool indicates, in most cases, a lesion of the rectum or left part of the colon. Occult blood is of entirely different significance. Bleeding, although one of the earliest manifestations, does not occur until the mucous membrane of the large bowel, we believe, in order of when a lesion originating in the deeper layers of the wall of the bowel progresses slowly and does not cause obstruction, its recognition, until laceration of the mucosa occurs and gives rise to bleeding, is uncertain and is not likely to be made. The three outstanding symptoms of carcinoma of the large bowel, we believe, in order of their importance, are: (1) change in bowel habit, (2) bleeding, and (3) manifestations of obstruction. These three symptoms oc-

curred in our series of youthful patients usually in the same proportion of severity and significance as in the average cases of carcinoma of the rectum. The diagnosis in all cases was easily made by digital examination or endoscopy, as is the rule in lesions in this situation.

Operability of the growths and the average duration of symptoms presented an interesting study. The average duration of symptoms produced by the thirty-five growths of this series which were deemed resectable was eight and one-tenth months, whereas in the twenty-one cases with nonresectable growths, symptoms had been known to be present for eleven and one-tenth months before operation (one additional patient in the series was not operated on at the clinic). The duration of the growth, as determined by the beginning of symptoms, is perhaps indefinite and yet it is quite comparable with the average case of carcinoma of the rectum. However, growths in young persons evidently reach a point which demands attention at an earlier time than those in persons of all ages taken together. Of the fifty-seven cases of carcinoma, in thirty-five resection was performed; in twenty cases exploration was done, conditions contraindicating resection were found, and palliative procedures were undertaken; in one case closure was made after exploration, without further surgical intervention, and in one in which resection had been done elsewhere, extensive treatment with radium was given. In 35.72 per cent of the fifty-six cases in which operation was performed at the clinic the status of the growth precluded resection. This is a favorable comparison with the average group in which there was a slightly higher percentage of growths amenable to radical surgical procedures. Of the total group of carcinomas of the rectum in patients of all ages at The Mayo Clinic, approximately 30 per cent presented a similar status, from which it will be seen that a greater percentage of nonresectable growths occurred in patients aged thirty years or less. Of this group of thirty-five patients, thirty-two survived resection and complete data concerning them are available.

The type of operation undertaken in young patients differs somewhat in its application as a routine from that employed in general. The patients are able to undergo more radical and difficult operation because of their youthful elasticity and vitality and because of the usual absence of complications, such as myocardial insufficiency, cardiovascular-renal disease, and other debilitating conditions which, in patients of advanced age, frequently prevent radical extirpation. As a general rule, considering the patient's ability to undergo an extensive operation, and the fact that carcinoma in young persons grows more rapidly because of the elasticity of their tissues, we believe combined abdominoperineal resection is undertaken more frequently than the less radical graded operation of colostomy and posterior resection.

Metastasis was found to occur more frequently in cases in young persons than in the average case and consequently more often ruled out resection of any type. In the series studied by Rankin and Broders, 560 cases of carcinoma of the rectum in patients of all ages, there was distant metastasis in 260 (46.4 per cent). Of the thirty-five cases occurring in young persons and in which resection was done, in twenty-seven the presence or absence of metastasis was noted; seventeen (63 per cent) showed distant deposits, and ten (37 per cent) were judged free from extension. Another interesting point was the comparison of the intensity of the malignant condition in young and in more elderly patients. In a comparison with the series of Rankin and Broders we found that, judging by the increased percentage of cases with metastasis, the shorter duration of symptoms, and the greater portion of nonresectable growths in patients aged thirty years or less, it seemed probable that a greater percentage of tumors of high grade of malignancy would be encountered than would be found in carcinomas in patients of all ages taken together. This was actually demonstrated, as is shown in table 1. This comparison shows that in young patients the proportion of carcinomas graded 3 and 4, was relatively higher than in the average series. Consequently the

prognosis for the group of young persons was poorer, since it has been shown definitely that the grade of malignancy has a direct bearing on the presence or absence of metastasis; the percentage of cases in which there were distant implantations increases in direct proportion to the grade, and the percentage of cases without metastasis increases in inverse proportion to the grade.

That the ultimate result, because of the higher grade of malignancy of rectal carcinomas in young persons, would be less favorable than in carcinomas of the rectum in persons of average age is emphasized by a comparison (table 2) of the present series with the series of Rankin and Broders. The percentage of ultimate good results for all ages and grades in the series just mentioned was 41.2 per cent, and of ultimate poor results for all ages and grades was 58.7 per cent. In the series of young patients, the percentages of ultimate good and bad results were 21 and 78 per cent, respectively. This total shows that the good results in young patients are approximately 50 per cent less and the poorer results 20 per cent more than in the average case of carcinoma of the rectum.

In the series of Rankin and Broders, approximately 50 per cent and 33 per cent, a half and a third of all patients of all ages, in whom carcinoma of the rectum had been resected, lived three and five years, respectively, after operation. In the young patients, the percentage of three-year cures and five-year cures was found to be approximately 35 and 20 per cent, respectively, a most substantial reduction (table 3). It is noticeable, however, that the percentage of five-year cures was satisfactory in the group of cases in which malignancy was graded 1. In this series of young patients, 13 per cent of the tumors were graded 1, and the results in the group graded 2 were not too unsatisfactory, but in the groups in which malignancy was graded 3 and 4, the percentage of cures was negligible.

The almost equal percentage of total good results and total bad results in cases in which the tumors were graded 2, 3, and 4 might be interpreted to mean that the dif-

ferences in malignancy according to grades, so apparent in the series of all ages, are negligible for grades 2, 3 and 4 in young patients, but such a generalization is not warranted because of the smallness of the series of cases under consideration.

It should be pointed out that the total good results in the group of rectal carcinomas graded 1 in young patients is apparently greater than that in the group graded 1 for all ages, and the percentage of total good results in the groups in which carcinomas were graded 2, 3 and 4 in young patients is apparently less than that in the same groups for patients of all ages. Nevertheless, the better results in young persons with carcinomas graded 1 is more apparent than real. Of the four carcinomas graded 1 in young patients, two were small. Of these two, one was a polypoid growth and the other was only 2 by 1 cm. These growths are so small that any comparison with the usual carcinomas encountered in a series is invalidated, and these two cases must be left out of consideration. Of the other two cases, a good result was obtained in one and a bad result in the other. One patient in whom metastasis was not demonstrable at the time of operation died within two years, and the other, in whom the presence or absence of metastasis could not be determined on account of the type of operation done (Quénu-Tuttle operation or local excision) is living after seventeen years. Thus, in spite of the actual figures as determined in this paper, the total good results in rectal carcinoma, graded 1, were practically 50 per cent. Furthermore the number of cases is too small to allow of conclusions being drawn from them. Therefore, it seems likely that the total good results in rectal carcinoma, graded 1, in patients aged thirty years or less are no better than the results in carcinoma of the same grade in patients of all ages taken together. In fact, the results in the youthful group may even be worse than those in the group composed of patients of all ages. In studies with a larger group, this possibility may be established as a fact. If so, it will be seen that with rectal carcinoma, graded 1, in

young persons, as compared with the same class of growths in patients of all ages, results will be similar to those now known to be obtainable in grades 2, 3 and 4. Such a result of subsequent studies would justify the general statement that rectal carcinoma of similar grades are more malignant in persons thirty years of age or less, than in persons of all ages taken together.

SUMMARY AND CONCLUSIONS

- 1. This series of rectal carcinomas in patients aged thirty years or less comprised 3.85 per cent of the total number of patients with rectal carcinomas operated on at The Mayo Clinic in the years 1907 to 1926, inclusive.
- 2. Shorter duration of symptoms, greater incidence of metastasis and nonresectable growths, decreased percentage of ultimate good results and of three-year and five-year cures, as well as the increased percentage of higher grades of malignancy, according to Broders' method of classification, establish the fact of the greater malignancy of rectal carcinomas in patients aged thirty years or less than in patients of all ages taken together.
- 3. Rectal carcinomas are probably more malignant in each grade in patients aged thirty years or less than in patients of all ages taken together.
- 4. The prospect for three-year or five-year surgical cure in the group of patients aged thirty years or less was considerably

less than in the group of patients of all ages taken together.

- 5. The total good ultimate results are 50 per cent less and the total poor ultimate results are 20 per cent more in this group of patients than in the group of patients of all ages taken together. Carcinomas, graded 1, alone may present an encouraging prospect for an ultimate good result.
- 6. The greater malignancy in the group of rectal carcinomas in patients aged thirty years or less than in patients of all ages taken together, as well as the decreased percentage of good results from treatment in this group, makes it imperative that these cases be brought to operation earlier and that rectal symptoms be carefully investigated at an earlier date so that early diagnosis may be made.
- 7. These studies (table 4) seem to bear out the statement concerning the former series reported by Rankin and Broders made after studying the relationship of the grade of malignancy, ultimate results, and duration of life after operation in patients of all ages; the statement was: "The grade of malignancy played practically no part in the average duration of life of those who are living, and it played practically no part in the duration of life of those who died after a good result, but it played a part in the average duration of life in those who died from carcinoma, since the average duration decreases as the grade of malignancy increases."

TABLE 1. COMPARATIVE PERCENTAGE IN INCIDENCE OF VARIOUS GRADES OF MALIGNANCY IN RECTAL CARCINOMAS IN PATIENTS THIRTY YEARS OF AGE OR LESS AND OF ALL AGES TAKEN TOGETHER (RANKIN AND BRODERS' SERIES)

Age	Grade 1	Grade 2	Grade 3	Grade 4	Total Cases
Thirty years or less	13.15%	34.21%	31.57%	21.05%	38
All ages	17.55%	50.00%	23.57%	8.86%	598

TABLE 2. GRADE OF MALIGNANCY AND RESULT OF OPERATION IN PATIENTS THIRTY YEARS OF AGE OR LESS AND IN PATIENTS OF ALL AGES TAKEN TOGETHER (RANKIN AND BRODERS' SERIES)

	Age	Grade 1	Grade 2	Grade 3	Grade 4	All Grades
Total good result....	Thirty years or less.....	75.00% of 4	10.00% of 10	16.60% of 11	14.28% of 7	21.84% of 32
	All ages.....	67.81% of 87	42.69% of 267	27.04% of 122	20.00% of 45	41.26% of 521
Total poor result....	Thirty years or less.....	25.00% of 4	90.00% of 10	84.40% of 11	85.68% of 7	78.00% of 32
	All ages.....	32.18% of 87	57.30% of 267	72.95% of 122	80.00% of 45	58.73% of 521

TABLE 3. DURATION OF LIFE

	Grade 1	Grade 2	Grade 3	Grade 4	Total
Total.....	4	10	11	7	32
Patients on whom information was available.....	4	10	11	7	32
Lived less than 3 years.....	$\frac{1}{(25\% \text{ of } 4)}$	$\frac{7}{(70\% \text{ of } 10)}$	$\frac{8}{(75.10\% \text{ of } 11)}$	$\frac{5}{(71.40\% \text{ of } 7)}$	$\frac{21}{(65.62\% \text{ of } 32)}$
Lived more than 3 years.....	$\frac{3}{(75\% \text{ of } 4)}$	$\frac{3}{(30\% \text{ of } 10)}$	$\frac{3}{(24.90\% \text{ of } 11)}$	$\frac{2}{(28.56\% \text{ of } 7)}$	$\frac{11}{(34.37\% \text{ of } 32)}$
Lived more than 5 years.....	$\frac{3}{(75\% \text{ of } 4)}$	$\frac{2}{(20\% \text{ of } 10)}$	$\frac{1}{(9.09\% \text{ of } 11)}$	$\frac{1}{(14.28\% \text{ of } 7)}$	$\frac{7}{(21.87\% \text{ of } 32)}$

TABLE 4. ULTIMATE RESULT AND DURATION OF LIFE¹

	Grade 1		Grade 2		Grade 3		Grade 4	
	Cases	Life, years	Cases	Life, years	Cases	Life, years	Cases	Life, years
Total.....	4		10		11		7	
Patients on whom information was available.....	4		10		11		7	
Living.....	3		1		1		1	
Good result ²	3		1		1		1	
Longest.....		17		9		3		10.5
Shortest.....		10						
Average.....		12						
Poor result.....								
Dead.....	1		9		10		6	
Good result ³					1	14		
Poor result ⁴	1		9		9		6	
Longest.....		1.91		5		4		3
Shortest.....				0.83		0.30		0.91
Average.....				2.09		1.76		1.51

1. This table does not include cases in which death occurred after operation or in the hospital, or after the patient was dismissed if the interval after the operation was too short to determine whether or not the patient would have died from the carcinoma; nor does it include cases in which the cause of subsequent death is unknown.
2. This indicates that the patient had been free from carcinoma, as far as could be ascertained, for a number of years.
3. This signifies that the patient lived for a number of years without recurrence and finally died from causes unrelated to the carcinoma.
4. This refers to cases in which there was reason to believe that death was due to the carcinoma even though in some instances death did not occur until more than five years after operation had been performed.

HYPOTHYROIDISM IN ADULT*

R. B. Wood, M.D., Knoxville

HYPOTHYROIDISM as a clinical entity has been discussed since Gull's description in 1884, and a reference to the classical signs of well advanced cases of myxedema is unnecessary other than to state that a case should not proceed to the state of the extremely dry, scaly skin and dry hair, slow pulse, edema of subcutaneous tissues, albuminuria, lethargy etc., before a diagnosis is made.

It is needless to state the metabolimeter has discovered more early and low grade deficiencies than any other one factor and that this is undoubtedly the most constant and reliable finding of all, but should always be checked in doubtful cases.

I wish to reiterate that the old classical signs are unnecessary and not always present in the majority of instances and the diagnosis may be first suspected by the metabolic findings. Secondly, I wish to direct your attention only to the early signs and symptoms.

The chief complaint of the patient is what we learn first and is what interests the patient, and this is usually, easy fatigability, lack of pep or endurance, lack of interest in work, poor digestion, menstrual disturbances, sterility etc., but on questioning one gains the added information of sensitiveness to cold, often poor resistance to respiratory infections, loss of sex urge, and occasionally loss of hair, or brittle hair and nails, or rheumatic pains.¹

Often owing to the age of the patient which is usually about the climacterium in females, the usual subjective findings are disguised by those of and usually ascribed to the "change."

On examination the findings are not those that attract attention immediately. The overweight, long stressed by the older clinicians is by no means always present but when present and unaccompanied by other

gland deficiencies is symmetrically distributed.

Reference to the writings of more recent years reveals the fact that perhaps only a slight majority of persons with a lower metabolic rate and other signs of hypothyroid activity are overweight.² Results of Rowe and Lawrence show that $\frac{1}{3}$ were underweight. The results of the writer reveal the following: In the case of the underweight patient a gain in weight on thyroid extract is to be expected, other factors being equal.

The temperature often described as being subnormal varies with the amount of activities within certain limits but on the mean is slightly subnormal.

The pulse may be slow but bradycardia is not a constant sign. King³ reports in a series of thirty cases a rate varying from 56 to 98 giving an average pulse reading of 72.¹ However, Lawrence and Rowe observe that 66 per cent of their series of 200 cases show a pulse rate below 70 per cent.

Trophic changes are apparently variable but the dry skin is perhaps the most constant. The scaly, rough skin of myxoedema is not to be expected in milk or early hypothyroidism. The more frequently involved areas are to be found about elbows, knees, and on the extensor surfaces.

The hair may present a dryness, sometimes in more advanced types a coarseness, but this is by no means constant. A recent case with all the classical signs and with a metabolic rate minus 39 per cent did not show dryness nor was there a tendency to break easily.

The nails, similar to the hair, does not always present the usual history of increased brittleness. Lawrence and Rowe make the observation that the skin is abnormal in 33 per cent of cases, while the hair was adjudged normal in 50 per cent of the series.

Nervous system: Headache is a rather common complaint of these patients and fre-

*Read before the Tennessee State Medical Association, Jackson, Tenn., April 10, 1929.

quently noticeable at the time of the menstrual period. Levi and Rothschild demonstrated a relationship between simple migraine and thyroid insufficiency. Musso Fournier⁶ report two cases of ophthalmoplegic migraine, apparently also connected with insufficiency.

Vertigo is mentioned by many writers and has been observed once by the writer in a male subject with a metabolic rate of 39 per cent. Although the diagnosis of encephalitis was made by an Eastern clinic, I feel that it is more likely due to the disturbed metabolism.

Paraesthesia are very common in hypothyroidism even to the degree that when accompanied by anemia and absence of Hcl in stomach contents that the diagnosis of pernicious anemia seems justified. One case of the writers with a metabolic rate of 40, a secondary type of anemia of a severe degree, absent Hcl and a spastic paraplegia advanced to the point where walking was forsaken, had improved under liver extract and Hydrochloric Acid to the point of a complete remission as regards the blood picture, but no improvement in the parasthesia or spasticity. On thyroid extract there has been such gain that walking is again possible. This disturbing feature, according to some writers, occurs in as high as 24 per cent of cases.²

Disturbances of the 8th nerve were pointed out by Falta⁴ and consist either of deafness of the non-catarrhal type or tinnitus.

Mental changes vary from signs of Maniac depressive insanity reported by Rowe and Lawrence to a mere slowing of the psychic processes.⁵ The picture where modified by onset before mental faculties are developed is more pronounced, but the usual picture is lack of concentration, memory defects and lethargy.

G. U. Sterility is of such frequent occurrence in hypothyroidism that when local causes are eliminated a basal metabolic rate is indicated.

Present in 39 per cent of the married cases in Lawrence and Rowe series and in of the writer's it merits con-

sideration, but due allowance must be given ovarian inactivity.

Menorrhagia is probably as common as periods of amenorrhea and the latter condition may often be due to a concomitant pituitary or ovarian disturbance. Lawrence reports only two abnormals in twenty-one cases.¹

Loss of libido and impotence may occur. A patient, age 50, with onset of impotence of three months duration was seen March 21, 1928, and in addition presented recent gain in weight, a very dry, scaly skin over elbows and knees and outer surfaces of arms, constipation and otherwise the picture of a normal individual. Thyroid gr. 11. daily resulted in return of function. Frequent miscarriage is reported by authors as due to lack of thyroid and as seen in the case of a female age 24—Hb. 46 per cent with secondary anemia who on force feedings, codliver oil, iron etc., was brought to 75 per cent, became pregnant, miscarried at second month and whose Hemoglobin three weeks later was 60 per cent, then presented a metabolic rate of Minus 19. On thyroid and no other change in diet or medication the gain on hemoglobin was markedly increased. Renal changes are not marked as in myxoedema, though an albuminuria without casts is seen. Many albuminurias of pregnancy unaccompanied by renal pathology and hypertension will clear under thyroid extract, thus at least suggesting its thyroid origin.

G. I. Tract: Perhaps the most common complaint referable to this system is constipation. Its frequent presence in so many patients detracts from its significance, and its presence usually in the minds of its owner accounts for the variable appetite which accompanies it.²

Lawrence and Rowe report that liver and gall bladder disease is five times as common in thyroid cases as in pituitary cases and more than twice as frequent as in a typical group of non-endocrine complaints.²

This to my mind is not necessarily the case of the thyroid deficiency causing the lowered resistance to biliary infections. Of special interest is the relationship of thy-

roid activity and gastric secretion, especially in reference to the Hydrochloric Acid. Mere references to this condition has only as yet been made.^{7 9}

Equally interesting is the blood picture often seen in many cases of hypothyroidism. Frequently seen in those cases presenting marked neurological findings and sub-or acidity. It is not to be inferred that the writer ascribes all cases of anemia with lowered metabolic rate as being of thyroid origin but the response to specific medication in many of these cases warrants a belief of the relationship in many instances.

The anemia is of the chlorotic type, and as early as 1883 Kocher recorded a count of 2,168—on a patient from whom the thyroid had been moved. Falta and more recently Warfield and Greene¹⁰ report cases resembling Chlorosis. Others⁸ report anemia resembling the pernicious type, often accompanied by absent Free Hydrochloric acid and improved by thyroid.

In addition to the decrease in total reds and the lowered haemoglobin, there is noticed a slight increase in the lymphocyte count and frequently an increase in the eosinophiles. This observation, however, is not of significance in the diagnosis of hypothyroidism.

I am aware that Plummer¹² in a very long series does not confirm the monocyte increase or the leucopenia, nor does Lawrence and Rowe.

The accumulation of the end products of protein metabolism is significant of the development of myxedema or concomitant renal disease rather than the true picture of hypothyroidism though at times an increase of uric acid is found without other significant findings.

Finally the question arises as to the reliability of the basal metabolic rate as a reliable method of diagnosing hypothyroidism. Those who have followed patients by frequent checks find extremely variable results even in untreated cases rechecked apparently under similar conditions. With such facts apparent it behooves one to take into consideration history, physical exami-

nation and other tests before a final diagnosis is made.

Grateful recognition is given to the authors, references to whom is appended.

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DISCUSSION

DR. J. P. KELLER, Nashville: Mr. Chairman and Gentlemen of the Association: You have heard a most excellent resume on this subject devoted chiefly to symptomatology of this condition. Of course, one of the most important things in the study of a subject like this is to impress upon us that there is such a disease. I agree with the writer most thoroughly as to its presence and to the symptoms that have been mentioned. It has been my privilege to treat in the past few years several cases that I diagnosed as such.

The writer, in his paper, stated that this condition is more common at or near the menopause in the female, but I find a number of cases that come on much earlier, that is, at the full development or transition in the adult stage. Probably the most disturbing symptom that I have found is, as he mentioned, the menorrhagia, which, with the accompanying condition of increase in weight and general nervous disturbance with a low metabolic rate, made me put them on the treatment. I have gotten very excellent results in the past two or three years and the patients have, apparently, returned to normal.

Now, I do not think that there are any set symptoms or laboratory findings that we can rely upon very greatly, just as Dr. Wood said. I do not think that we can put too much stress or rely too much upon the metabolic rate, unless we know the conditions under which it is made. If I am to reply on the metabolic rate I want more than one made, because, last week I had a metabolic rate when it was plus three and, two days later, I got plus forty-two. I simply mention this to show the necessity of checking up on any laboratory procedure. We must bear in mind that this condition is present and my own opinion is that in the majority of these cases that attained the age Dr. Wood mentioned, that is, around the time of menopause that we have glandular deficiency, not in the thyroid alone but, perhaps, in other glands as well. When these cases that are anemic, have gastric and neuro symptoms come to me I feel like checking them over. Even with a low metabolic rate I feel that we have not only the thyroid involved but we have other glands which work with them—pituitary and suprarenal particularly—and I have very often gotten excellent results with mixed bland treatment, pituitary and suprarenal with the thyroid.

DR. Y. W. HALEY, Nashville: Mr. Chairman, I just want to emphasize one fact I think will bear emphasis on what Dr. Keller has brought out as the pleuro-glandular activity in these hypothyroid cases.

We will find many times a very distinct marking of hypothyroidism, which probably is a primary marking. That is so overshadowed by some of the markings of hypothyroidism that we are liable to overlook the fact that these cases should be treated as a pleuro-glandular condition instead of inactivity of a single gland.

I recall some cases where they came in with a pituitary condition, especially the posterior lobe. We think these cases have no hypothyroidism, even with a normal metabolic rate, which was a primary condition, and treat them with pituitrin, with no benefits. When we give them a pleuro-glandular treatment, you will find with the thyroid, the suprarenal extract and even with the ovarian extract, they will get very much more marked results. If we take into consideration that one of these ductless glands will so often affect the other chain of endocrine glands, I think we will get better results in the treatment of these cases. (Applause.)

DR. J. A. MCINTOSH, Memphis: It is true that many errors may occur in determining the basal metabolism. It is true that extraneous interferences like noise will hasten the rate. In actual experience if the patient is properly prepared for the metabolic rate, variation as wide as the speaker mentioned rarely occurs. I have never seen such a wide variation as forty points after proper preparation of the patient.

The preparation briefly is this: The night before (the rate should be done in the morning) the pa-

tient is hospitalized, put to bed with a light supper, next morning not disturbed, takes no water nor food, sent to the metabolic room in rolling chair.

After the patient has been in the room approximately thirty minutes under soothing surroundings, the rate is determined.

The Sanborn graphic metabolic instrument is a satisfactory instrument especially the late model for determining the rate. Few slips can actually happen if instructions that accompany the machine are followed.

In hyperthyroidism there is an eosinophilia of the blood. This enables us, if detected in a blood smear, to suggest a metabolic rate to the doctor. In eosinophilia that cannot be accounted for in any other way a metabolic rate is indicated.

If the rate is carefully determined as outlined you will not meet with these wide variations which the speaker mentioned. The metabolic rate oftentimes gives very accurate information. It is like determining the blood pressure or like taking the temperature, or making a blood count, it puts into the doctor's hands information about the patient. It does place in his hands information that helps. It does not make the diagnosis, but it helps him in his approach to an accurate diagnosis.

PRESIDENT HOWLETT: Any further discussion of this paper? Any one else wish to discuss the paper? If not, we will ask Dr. Wood to close the discussion.

DR. WOOD: As I was hoping, the discussion arose as to the pleuro-glandular treatment. I have never, in my own mind, been able to convince myself as to the efficiency of pleuro-glandular treatment, especially given orally, because of the fact that the gastric secretions destroy the potency of many of the gland products. I think, as yet, our chief reliance must still be placed in thyroid extract, if given orally.

Mention was also made, and I think one of the speakers incorrectly attributed the statement to me, as to the re-checking of a metabolic finding. I think that the greatest source of error may be made on getting too high an estimation, that there are more chances for error in high readings than there is in the low readings.

It isn't such a simple problem to figure up the metabolic rate. On determining the metabolic rate there are chances of error on account of the human equation that enters into it. There are more chances of getting too high a reading than there is too low a reading.

I think it would be well for every physician to know how to figure his own metabolic reading, and when one is forced to send his patient to another man, that the figures should be given to the original man and let him do his own metabolic reading as a re-checking of the man who has done his metabolic work. In that way, you will have two checks.

I haven't always followed the rigid rule of hospitalizing the patient for a metabolic reading. I think that the source of error is not too great in having those patients go to the office in the morning, without breakfast and relax for an hour on a cot, and then take the test. I think that is the opinion of many workers that they have a sufficient amount of relaxation in order to get a fairly accurate metabolic reading. More particularly does

that apply, I think, with the hypo- than the hyper-type.

As to eosinophilia, I do not mean to imply that eosinophilia is a characteristic of hypothyroidism. While it is true, there are so many things that produce eosinophilia, that if it is present unless accompanied by many other signs it is not reliable.

I wish to thank the men for their frank discussion, as I enjoyed it very much.

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS IN CHILDREN*

JAMES A. PRICE, M.D., Oakville Memorial Sanatorium, Memphis.

TUBERCULOSIS should be considered a disease of childhood. When we review the evidence in support of such a contention we find that at the age of 15 years, 75 per cent of the population will give a positive reaction to the tuberculin test. In infancy the percentage of reaction is comparatively small but it increases steadily each year.

In a series of 7,000 children, ages 5 to 13, given the tuberculin test by Chadwick of Massachusetts, 29 per cent were positive; of those, the ones twelve and thirteen, 50 per cent were positive. So in spite of a decreasing national death from tuberculosis, there is a very widespread infection with tubercle bacilli.

Do Children have Tuberculosis? In the age groups of 10 to 19 the deaths from communicable diseases is headed by tuberculosis. Seventeen per cent of all deaths from tuberculosis occurs in the age group 1 to 19. Five per cent of these are in children under 10 years.

Some years ago Opie of Philadelphia but formerly of St. Louis, reported that of the children of St. Louis dying of other diseases, focal nodules of tuberculosis were found in the lungs of children two to five years of age, in 42.8 per cent; from 5 to 10 years of age, 45.5 per cent; from 10 to 18 years of age, 55.5 per cent. He also found

that the tracheo-bronchial lymph nodes adjacent to these primary foci were diseased. These facts furnished by clinicians, pathologists and mortality statistics furnish very conclusive evidence that tuberculosis is a very common disease of childhood.

With the massive evidence of research on tuberculosis in children by such men as Chadwick of Massachusetts, Opie and McPhedron of Philadelphia, Rathburn of New York and McCain of North Carolina, we must change our attitude toward the undernourished, chronically tired, listless child.

Our hope of eradicating, or at least holding tuberculosis within reasonable bounds, we have got to pay more attention to Juvenile or Childhood Tuberculosis and check it before it has reached the adult type with destruction of lung tissue.

Before attempting to make a diagnosis of tuberculosis in children we must first get a clear conception of the pathology of the disease at different age periods. The reason why we have not recognized tuberculosis in children before, is because we have always waited for the usual manifestations as a pulmonary disease. That, however, is the adult type of tuberculosis which is very rare in children. In children we must not expect to find tuberculosis in the lung but in the lymphoid tissue, which is nature's line of defense against disease.

The tracheo-bronchial lymph nodes are the ones most often diseased, because they are so placed that they receive all the drain-

*Read before the Tennessee State Medical Association, Jackson, Tenn., April 9, 1929.

age from the lungs. So you can see that our attention is directed to them for diagnosis.

In the question of diagnosis, I shall deal with the Tracheo Bronchial or Juvenile type of tuberculosis.

DIAGNOSIS

Physical examination and physical signs of a child's chest is so absolutely unreliable so far as tuberculosis is concerned, that it is not to be considered as one of the necessary procedures. But your diagnosis is dependent on your painstaking care and correlation of all data under five procedures.

1. Carefully taken history as to contact.
2. A positive tuberculin test.
3. Symptoms.
4. X-ray findings.
5. Complete physical and laboratory findings to eliminate other causative factors.

A negative history of a child as to contact should probably be considered with less weight than the other factors because they are so frequently contacts without knowing it. The distributor of the infection never having been diagnosed.

The most essential point in diagnosis is a positive tuberculin test by which method we establish the fact that the child is the host of tubercle bacilli and no diagnosis is complete without it. Dr. Kraus of Baltimore pointed out a number of years ago that we could save a lot of time and effort by doing a test first and eliminating the question of doubt as to infection.

The Von Pirquet test is less sensitive but more convenient and is the one of choice for the busy practitioner, while the intracutaneous is the one of choice for institutional and hospital work and I prefer for my office work.

For the intra-cutaneous test dilutions in normal salt solution with one-fourth of one per cent carboloid acid from 1 to 10,000 to 1 to 100 in 1/10 C. C. amounts increasing the strength in negative reactors to be sure of overcoming immunity.

There is supposed to be a loss of tissue allergy following some of the childhood diseases as measles, whooping cough and other

acute infections so that a negative test soon after recovery should be repeated in a few weeks. A *Positive* does not mean active disease but only that the child is host of living bacilli somewhere in the body. If negative and you are sure of potency of tuberculin, it means that there is no infection. McCain of North Carolina, who has examined 25,000 school children points out that the degree of reaction is of value. That the largest number of clinical cases of tuberculosis has been among those children who gave strong reactions. Opie and McPhedran point out the fact that the probability of grave tuberculous infection increases with the severity of reactions. Kraus states that skin hypersensitiveness varies directly with the extent and severity of the disease, as it increases with progress and diminishes with healing and is increased with reinfection.

SYMPTOMS

The most common symptom is *Fatigue*. A chronically tired child without apparent cause is one to be suspected of a hidden foci of tuberculosis. Such a child is usually under weight and fails to gain in a normal way, lack of appetite, listlessness are very characteristic. Some of them show extreme nervous irritability and restlessness. Cough may be present intermittently but unproductive, is of a brassy type with an expiratory dyspnoea as contrasted to your inspiratory dyspnoea of whooping cough. This being due to pressure of gland masses on bronchi rather than bronchitis.

Local sweating is common, not the night sweats of adult tuberculosis but as found in debility. The temperature is usually normal with a possible rise to 99.6 to 100 from fatigue or undue exertion. A few days' rest will usually bring this down to normal.

X-RAY

The X-ray is our only means of demonstrating tracheo-bronchial tuberculosis. But the interpretation of the plates must be done by one who is not only familiar with chest films in general but films of children's chests in particular. He should also have a clinical background and the interpretation should not be independent of a careful con-

sideration of the history, clinical examination and symptoms, eliminating the many foci of infection that could cause confusion. In tuberculosis of the lymph nodes the usual shadow at the hila is increased in density and area. This shadow may be homogeneous but more often there will be seen within its borders spots of greater density due to diseased glands with thickened fibrous capsules or some that may have undergone calcification. There may be masses irregular in outlines extending out in the parenchyma of the lung. A primary focus partially calcified may be seen anywhere in the lung and is as frequently at the base as any place.

The X-ray plates should always be stereoscopic, a flat plate being taken in oblique position to eliminate the possibility of blood vessels caught on end giving appearance of a softened and enlarged gland. The oblique position also separating the hilus shadows from spine and aorta.

SUMMARY

Essentials of diagnosis.

1. A complete history from parents as to symptoms, contact and other illness.
2. Physical examination including nose, mouth, teeth, throat, heart and lungs.
3. Tuberculin skin test.
4. X-ray chest.
5. Exclusion of all conditions that may cause congestion and disease of the tracheo bronchial glands.

TREATMENT

The term latent tracheo-bronchial tuberculosis is used to describe the cases in which the X-rays show pulmonary nodules of tuberculosis, tracheo-bronchial lymph nodes, or both, but in which symptoms of active disease are absent. Because of the age of the child we know that such tuberculous lesions are comparatively recent and contain living tubercle bacilli. The child is in a state of equilibrium as long as the balance between the effects produced by the tubercle bacillus and the resistance to the invader is maintained. This condition may be fleeting or may be permanent. The chance that intercurrent disease may lower resistance;

the amount of rest, of outdoor life, or strenuous exercise, are some of the factors that determine the issue as to whether or not these cases become active and progressive. It is the opinion of most men in tuberculosis work that the childhood infection lays the foundation for any tuberculosis that may develop in later life. To me there is truth in the old aphorism that "tuberculosis is the last verse of the song, the first of which was sung to the baby in the cradle."

I think tracheo-bronchial tuberculosis in a child, whether latent or active, should be considered as a serious condition and treated as such, because of the ease with which it becomes reactivated if latent and develops into an active adult type of the disease. Having established the diagnosis of tracheo-bronchial tuberculosis we should first locate and correct other diseased conditions causing symptoms. in order to give this child every opportunity to build up its resistance to fight the tuberculosis. The child is then put on a daily routine of rest, fresh air, food and sunshine.

Rest is regulated according to the temperature. If a child is running temperature it is put to bed and kept as quiet as is consistent with the child's composure and disposition to accept it. Some of them are quieter and really rest more if permitted to have toys and playthings in bed. However, rest is encouraged and taught to the child until the temperature has subsided for at least a week. Children free of temperature rise at seven and have breakfast at seven-thirty, or about that time, play out in the open from eight to nine-thirty, from nine-thirty to eleven-thirty go to bed. At eleven-thirty they get up and prepare for lunch, which is served promptly at twelve. After lunch they play in the building quietly until one, at which time they go to bed and are not permitted to talk or play, but try to sleep until three p. m. Then they are allowed to get up and bathe, and at 3:30 p.m. they go outside for two hours, except in case of rain. Supper is served at five-thirty and they are permitted to play inside or out, depending on the time of year and weather, until seven-thirty, when they prepare for

bed. Lights are out at eight. These children are in bed fifteen hours out of the twenty-four and most of them get twelve to thirteen hours of sleep.

Food is most important. It is not so much the food they get so long as they get a well-balanced diet, but the time it is served to them.

I am firmly convinced that overfeeding is worse than underfeeding and in handling both adults and children with tuberculosis I have proven to my own satisfaction that this is true. Best results have been obtained by feeding at such intervals that the stomach has time to empty and get sufficient rest before refilling. The children at Oakville range from four to twelve years and their state of nutrition will convince anybody that this is true. Their breakfast is of eggs, bacon, cereals, with some variations that the matron can make, and fresh fruit every day. For lunch, vegetables, always having spinach, lettuce or some of the salads, meat, milk and dessert. The usual dinner meal always has cooked fruits and frequently raw salads.

The point that I would like to emphasize here is that these children only have three meals a day, with nothing between meals except fresh fruit which is permissible after rest hour in the afternoon. They are never allowed candy or sweets except after meals as a dessert. The consequence is that they are always ready to eat at meal time and relish their meals.

Sunshine and fresh air can hardly be treated separately. The sleeping quarters should permit at all times a free circulation of air, regardless of the temperature.

Rollier has demonstrated by his treatment of surgical tuberculosis with heliotherapy that he not only gets results by the attack on the local foci, but that air and sunshine fill all the requirements for the treatment of tuberculosis, both local and general. It has a therapeutic and prophylactic value as well as an incomparable social value. This social value is just as clearly demonstrated in the child as adult. The skin gains in tone and pigments progressively. It regains its important psychological functions, protection, innervation, excitation and elim-

ination. Pigmentation confers a progressive resistance to heat and cold and prevents penetration of disease. It acts in the capacity of an accumulator, the patient's resistance being in proportion to his pigmentation, protecting the skin against irritation of the ultraviolet rays and regulating heating effect of the sun. Rollier thinks that very probably the pigmentation receives, supplies and activates the essential elements of the hormones. The vibrating shock which the solar radiations bring out in the sensitive nerve endings of the skin is probably responsible for the stimulating and regularizing of the circulation, resulting in better nervous and muscle tone. The tonic action of the sun and air revives the appetite, stimulates digestion and increases vital tone generally. There is an increase in red blood cells and hemoglobin; metabolism increases. According to Rollier, this reactivated blood stimulates intracellular oxidation and increases resistance, thereby making it a better instrument for fighting tuberculosis. The morale of the patients is wonderfully sustained by the use of the sunshine, probably better termed sun and air baths as we are using it with our children. It acts as a tonic and constitutes the most energetic of reconstituents. The results that we have gotten from having our children go naked the year round has almost caused me to condemn clothing for all children.

Children admitted to Oakville free of temperature are relieved of their clothes and put in pajamas. If temperature exists they are treated in bed until the temperature has subsided for at least a week. Then the usual routine. They are allowed the run of the house for several days, in winter for a week. Then they are given overalls, and if a warm day, allowed out for one hour morning and afternoon, but are closely observed by the nurse to see that they are kept moving and if there are any signs of chilling. Having become used to this they are allowed out full time until the weather is warm. Then they are given hip clothes, which are just as abbreviated as we can make them. In winter all children are supplied with woolen socks, mittens and caps, and with

their hip clothes this constitutes their wardrobe for day clothing while in the sanatorium. There is no attempt made to expose these children to sun rays by keeping them still and exposing them gradually. By moving and playing outside they get a gradual exposure that is much easier and just as effective for our purpose.

I quite agree with Dr. Bullock, formerly of New Mexico, who says that air baths are equally as important as sun baths. Of clothing he says: "The invention of clothing was an unfortunate thing in the history of humanity and dispensing with it is greatly to the advantage of the tuberculous."

These children are all furnished with outing pajamas in the winter and stone pigs filled with hot water to warm their beds, with sufficient cover to keep them comfortably warm, but watched very closely to see that they are not overheated. Their windows are wide open. These children are out of doors morning and afternoon every day in the year except in case of rain. Precautions are taken to keep their feet dry, hands, head and feet warm. They rarely have a cold or sore throat and their gain in weight during the second, third and fourth weeks is frequently as much as a pound a day for as long as ten days.

This routine is kept up for at least one year and as long thereafter as is deemed necessary to insure the complete arrest of the condition. Each case is treated individually.

There is no specific and all symptoms have to be treated as they arise.

DISCUSSION

DR. M. F. HAYGOOD: Mr. Chairman and Gentlemen of the Association: I don't know very much about this subject. However, it seems to me that Dr. Price has brought to us a most important question in medicine. The administration of a tuberculosis control program and the interpretation of the results should receive very careful consideration.

I believe that a few years ago we had an idea that if a person reacted positively to the tuberculin test that he or she had tuberculosis. We find that this is not necessarily true. They are simply infected with tubercle bacilli.

Now, in addition to finding out who are reactors, particularly among the children, a history—a cor-

rect history—is most important for the reason that we are trying to determine who, among those children, most likely to have active tuberculosis, or, on the other hand, hilum tuberculosis; which I believe is also called primary tuberculosis.

Dr. Chadwick, of Massachusetts, during the three first years of his ten-year program, selected his cases from among contacts, children who were ten per cent or more under weight, or children whose health was sub-normal.

He had forty-nine thousand children examined under this plan, whereby they were selected. Out of this forty-nine thousand, 28 per cent, in round numbers, showed a positive reaction.

The next year, that is, the fourth year, he did not select his cases; he simply took the children as they came, without reference to the kind of history they presented or the physical condition at the time the examination was made. It was rather odd, he had exactly the same per cent of reactors, namely, 28 in each group; but of those children who were selected, he found that 17 per cent had pulmonary tuberculosis. Of the non-selected group, he found that only .03 per cent had pulmonary tuberculosis. Also, of the children who were selected, he found 3.6 per cent to have hilum tuberculosis. Of those non-selected, he found only 1.4 per cent had hilum tuberculosis.

It seems to me that the history of the case is quite valuable in trying to interpret the findings.

I feel this way: That we would like to reach all of these children we possibly can, those who have hilum tuberculosis and the small percentage, which is slightly more than one to a thousand, that have pulmonary tuberculosis. But at the same time we want to remember that those who are exposed to tuberculosis infection are the ones who have hilum as well as pulmonary tuberculosis most frequently. Therefore, it seems to me the physician, the family physician, who treats a case of active tuberculosis in the home can do much toward the finding of these early cases. I think if he would say to the head of that family, "What about the children, have they had a physical examination recently? Don't you think it would be a good idea?" And of those who are underweight and those who give a positive tuberculin test, I think, by all means, an X-ray should be made and try, if we can, to diagnose the condition early and place them under treatment, such as outlined by Dr. Price.

There is one other point I would like to make. We are talking now about the group of children that are infected, that have an allergic reaction by reason of tuberculous infection. We want to remember that the other children who are not yet infected may also become infected and develop tuberculosis.

As Dr. Price mentioned, at the age of 15, approximately 75 per cent of the children are infected. Now, whether there is anything to it or not, I believe we can't say, but we should have an open mind with reference to protective qualities of

B. C. G. Vaccine. I see there are some who laud it to the skies and others are condemning it.

Now, in this State, some experiments have been carried on with reference to the use of this measure. I doubt if there is anything yet accumulated worthy of publication, but I would make a plea that we all hold an open mind as regards the use of B. C. G. Vaccine until someone can tell us definitely as to whether or not it has real worth. (Applause)

DR. L. T. STEM, Chattanooga: I was fortunate last summer in being in Vienna and being in Dr. Von Pirquet's clinic, who as you know, was Professor of Pediatrics at the University of Vienna. He has recently killed himself. He had been reduced by the war to poverty. He was very proud and once had a very enormous estate, now had only about an acre of ground out in the country, and I spent one whole day in his tubercular section and I spent one morning in his X-ray section, and it was marvelous to see his X-ray man fluoroscope those cases, and then turn and ask what his reaction had been, whether the reaction was positive or negative.

He always said, "This child shows evidence of tuberculosis. He has thickened Hilus and to me, is an indication of active tuberculosis." Then, he would ask, "What has the reaction in this case been?"

I think that morning we saw about forty cases in which he fluoroscoped.

The question of air treatment, as Doctor Price spoke of here, certainly does have a marked influence, because during the summer, over there, last summer, it was very cool and in Berlin, a day just like this, cold, damp, I had an overcoat on and I was cold with that. These children with their skin as brown as a pancake, lying in beds with shirt and just a sheet over them. I couldn't understand how those children could get along, were fat and improving, looked healthy, seemed to be in fine shape.

Now this question of B. C. G. Vaccine, for the past year I have been looking over the question. I heard Doctor Calmette in Paris, last year, read his paper on the B. C. G. Vaccine. He said that in the city of Paris, in the infected area, where a child was exposed up to the period of one year, the mortality was about thirty-two per cent. That is, the child who was exposed up to one year of age, that the mortality in that child was around thirty-two per cent. In the whole country of France, the mortality ranged to about thirty-four per cent. There had been given under his direction, in France, about thirty-eight thousand patients, and that the mortality had been reduced in that same section nine-tenths of one per cent.

They use the Vaccinating Culture termed B.C.G. (Bacillus Calmette Guérin). Professor Calmette being of the Pasteur Institute, it is prepared there and comes from a very virulent culture of bovine tuberculosis and in his words, which has been attenuated by a series of 230 successive cultures on

beef bile, a very alkaline medium which modifies the physico chemical constitution of the bacillus and transforms it into a race offering fixed properties non-virulent and incapable of producing reinoculable tubercular lesions. Nevertheless, this race, hereditarily attenuated, secretes tuberculin and determines, in the living organisms, the formation of antibodies detected by the reaction of Bordet-Gengou. They administer the culture by mouth to very young children during the ten days following their birth, to older children and adults subcutaneously. We had with the group visiting Europe quite a few men doing tubercular work and some of them had just come from Saranac Lake, where they had been checking up on B. C. G. Vaccine, and they were very shy on the question. They had isolated one very virulent germ in it and they were afraid of it, but if thirty-eight thousand children had this treatment in France with no ill effects, as they claimed, and the mortality in this same area had been reduced from thirty-two per cent to less than one per cent, there certainly must be some virtue in it.

It certainly is a thing that almost makes you shudder, giving a baby live T. B. bacilli for ten days, but still if it is doing the work, without producing any ill effects, there certainly must be something to it.

I hope that some of the other men who discuss this will bring out their experience in B. C. G.

DR. F. L. ROBERTS, Trenton: Mr. Chairman and Gentlemen: There are many ways of attacking tuberculosis in children and one way, of course, is to protect these children against infections that might reduce their resistance. Another way is taking the children who are malnourished and attempting, through nutrition classes, to build them up.

That is one way the State Department of Health has been attacking the tuberculosis problem—a well-rounded health program, to educate the children in ways of diet and preventing in so far as possible their contracting scarlet fever and various other epidemic diseases that might reduce their resistance.

Another way is decreasing contacts in the home. The Division of Tuberculosis Control carries on home work among the tuberculous, under the physician's direction. No home work is done on these cases except under the written orders of the family physician. After the nurse has these orders she goes into the home and tries to instruct the people how to avoid contact. Sometimes, of course, the problem is almost insurmountable, as in the following instance:

I saw a case last Sunday—a woman with active tuberculosis, with three children, was living in a two-room cabin. Of course, there is a problem hard to solve, but at the same time by educating these people to the danger of exposure and to the question of diet under their own physician's direction, a great deal can be accomplished.

I was interested in Dr. Price's statement of un-

recognized tuberculosis among children. There must be a vast amount that is unrecognized.

Several years ago I was working on the problem of vital capacity of white children compared with that of negro children. We found that the vital capacity of the negro child was about fifteen per cent to twenty per cent less than the white child of the same weight, but we found that when we took the sitting height, the vital capacity was the same.

What interpretation can be placed upon this, I don't know except we do know that the negro is very susceptible to tuberculosis and it is possible that enough of these thousand children had tuberculosis to affect the average vital capacity of the group.

Another thing we noticed. The vital capacity of the white children in certain age groups showed a considerable deviation, which would probably lead one to suspect in that group of children studied, there were a great many that had unrecognized tuberculosis.

I was very much interested in Dr. Price's paper, and I think the question of tuberculosis among children must be attacked from every possible angle, by hospital treatment, by educating the people against the danger of exposure, by reducing exposure in the homes and by building up the general health and strength of the child population. (Applause)

DR. WILLIAM LITTERER, Nashville: The question of Calmette's B. C. G. Vaccine has been brought up, which has been of particular interest to me. Through the earnest efforts of Dr. John Overton, City Health Officer, of Nashville, who finally succeeded in obtaining a B. C. G. culture direct from Calmette's Laboratory, of Paris, France, as well as a culture from Dr. William H. Park, of the New York Board of Health. Dr. Overton turned these two cultures over to me last April, one year ago. Since that time, I have been carrying on various lines of research and experimentation with the vaccine. Since there have been so many conflicting reports pro and con concerning the possible harmful nature of the vaccine, I first conducted my experiments along the line of testing out its innocuousness. As a result of subcutaneous and intraperitoneal inoculations and feeding experiments upon 125 guinea pigs, I am convinced that the vaccine is harmless, unless given in enormous doses. A guinea pig is far more susceptible to tuberculosis than a human being. Now if pigs can take a thousand times the dose as ordinarily given to humans without producing harm to them, then I can see no risk in its use upon human beings. The preparation of the culture media and standardizations in minute detail must be implicitly carried out according to Calmette's technique. Any deviation from the set procedure will necessarily produce conflicting results, as shown from Petroff's experiments. After thoroughly satisfying myself of the harmlessness of the vaccine, I subjected myself to the inoculation of the vaccine, and at the

same time, Dr. Overton received a subcutaneous injection also. Both of us gave a positive tuberculin reaction before taking the vaccine. A positive tuberculin reaction is contraindicated in the administration of the vaccine. However, we took it anyway as an experiment, with the result that a very definite reaction appeared several hours after. The area of redness was about three inches in diameter without very much pain. This lasted a few days and began to subside for several days. At the end of the week, the area was indurated and slightly red and little pain. In two weeks, a cold abscess formed which was opened two weeks later with about 8 cc. of pus recovered. The pus was sterile by culture and on stained preparation of the pus showed a few fragmented acid fast rods. The incised wounds healed readily. Dr. Overton and myself have given the vaccine subcutaneously to about ninety cases. The ages ranged from one year to adults. The amount given to each individual was 1-100 of a milligram. The reactions were never severe; there was little pain even in spite of the formation of cold abscesses that were produced in the majority of the cases inoculated. Over 95 per cent of our cases produced a positive tuberculin reaction within 8 weeks after the injection of the vaccine. Dr. Overton has given six new-born infants the vaccine by mouth. We believe that 1-100 mg. subcutaneously is perhaps too large a dose under ordinary conditions. We intend to lessen this dose to avoid the cold abscesses. The vaccine can be given by any physician with an ordinary hypodermic. I would be pleased to furnish any physician the vaccine, free of charge, if he wishes to avail himself of the opportunity.

DR. PRICE: Mr. President, as far as the B. C. G. Vaccine is concerned, I have still an open mind.

We have some so-called cures for tuberculosis that eventually have panned out to be probably aids but not cures in some cases. I feel that this vaccine is still in an experimental stage, but I don't feel, personally, that it has gotten to a point where I would attempt to use it as a preventive.

In regard to the treatment of tuberculosis, there have been many rich men who have been cured with tuberculin, but they manufactured their own remedy.

I think we have got to look at this fight on tuberculosis and prevention of tuberculosis as a simple proposition if we carry out the simple measures and the things that are necessary to bring down this infection rate that we have.

We have got, first, removal of source of infection from these children. We know they are going to be infected unknowingly, but if the infection is slow and gradual and nature's forces can take care of them, this child establishes immunity and is probably very fortunate.

Then, from a standpoint of diet, I am not taking issue with him on diet, but what I think the child needs is good, nourishing food three times a day and no particular diet is necessary, and

instead of providing quantity of milk for these children and feeding them on milk, if you will give them a normal amount of milk along with other foods, you will have a better, developed child, with greater resistance than on a milk diet and forcing quantities of milk down them which is all wrong. No doubt, some of you will take issue with me.

The simple procedure, we have to lay the foundation of removing their source of infection, regulating their lives and letting them use foods, sunlight and air is going to lay the foundation for the fight that we are making now.

Thank you, gentlemen, for discussing this paper. (Applause)

THE MANAGEMENT OF OCCIPITO POSTERIOR POSITIONS*

W. T. PRIDE, M.D., Memphis

FOR more than a century this subject has been discussed by the small and great of the obstetrical world and it is safe to say that no one sane and satisfactory method of procedure has resulted but there are many improvements over the old order of things and these are the points I wish to discuss with you today.

Well do I remember how helpless the young physician feels when mal-positions of the foetus are in his pathway to success—injured child, lacerated mother and disappointed father.

I would not mislead you by saying they are easy, after twenty years of practice, but at least we now have a definite line of attack as any great General lays out his plan of battle, so we lay our plans and your success will be measured by two things—First, how efficient these plans are, and, Secondly, with what skill they are executed, for if either are poorly done the result will be bad.

You have often heard the expression, “A fool for luck,” and so it is in obstetrics. We have an occasional case of this when the physician applies forceps to an Occiput Posterior before complete dilatation and by main force drags the head through the pelvis and perineum without change or regard for either mother or baby. Strange to say both sometimes escape without serious injury but more often the reverse.

Bordeloque, Smellie and Scanzoni gave us the methods which are the fundamentals

upon which all other procedures have emanated. Have we made satisfactory progress?

1. What happens in an Occiput Posterior?
2. How often does this happen?
3. Why does it happen?

Remember the *Object* to become engaged is ovoid in shape and this is to pass through a canal caudiform in shape with a sharp curve at the outlet. Necessarily there must be engagement and in order to accomplish this there must be rotation, either right or left, anterior or posterior, and finally the exit or disengagement. Now, how is this accomplished?

The head descends to the pelvic brim and in my experience enters the pelvis in either a transverse or posterior position in 70% of the cases. This has not been the teaching, and until Podalic Version and Perineal dilations were done with an opportunity for thorough diagnosis, I too, believed that 70% were engaged anteriorly. With the head in the transverse or posterior position as labor proceeds anterior rotation takes place—so if allowed to proceed, 70% of cases are of the anterior variety at the outlet. There is little doubt as to the cause of a persistent Occiput Posterior.

1. A flat pelvis where resistance is great.
2. Some peculiarity of the promontory of sacrum.
3. Some deformity or peculiar form of the ovoid head.
4. Rather large body of foetus conforming to the mother, the foetus lying upon its back.

*Read before the Tennessee State Medical Association, Jackson, Tenn., April —, 1929.

5. Very large pelvis and small child—when no resistance is met.

6. Inertia Uteri.

7. Certain mechanical deformities as uterine or ovarian tumors.

There may be others but these are certainly the most frequent. Now, what is the management?

Knowing the cause we can proceed with more confidence. We will not take up each cause separately but narrate the procedure in group form so to speak. The most important point of all is to make the diagnosis early.

The patient is in for a longer labor than usual, hence, is given sufficient analgesia to make her as comfortable as possible until cervical dilatation is almost complete. She is then placed in position for delivery and nitrous oxide and oxygen given with the pains, perineal dilatation is done and the patient is catheterized, then with each hard pain (using sterile Tr. Green Soap in vagina) the index finger is pressed gently against the anterior occipito parietal suture, this gives the resistance necessary and a very few pains accomplishes the desired results. If this not possible forceps are applied, either before the head is firmly engaged, when it may be successfully turned and held until engaged, or if low in the canal a modified Scanzoni is the choice.

Very rarely the persistent occiput posterior requires a delivery. This in a primipara should always be preceded by an episiotomy. There is never any indication for a cesarean section in an occiput posterior unless some other complication exists.

The final method of delivery I shall mention is the best in a large majority of cases but used by the fewest number of obstetricians, namely—podalic versions with extraction. There are certain obstacles to be recognized, such as small passage and large passenger; certain deformities of the pelvis; retraction ring, tonicity of the uterus, sufficient anesthesia, skill of the operator in this special field, position of patient, etc.

For a few minutes I will discuss with you a complication which so often occurs in my

experience causing the greatest obstacle to delivery, namely—

RETRACTION RING

This is a pet of mine and if I seem too enthusiastic you may know why. The year 1919 marked the beginning of my study of this and since that time have read many papers upon it. I will endeavor to definitely define and differentiate this condition from the well known "contraction ring."

In a paper before the Gynecological and Obstetrical Section of the Southern Medical Association in Dallas, Texas, I fully described this condition. As you know the uterus is composed of longitudinal and circular contractile fibers what is known as the lower uterine segment or that portion which softens preceptibly under the influence of pregnancy, so described by Hegar years ago, where the circular and longitudinal fibers meet and it is here that the "retraction ring" is found. This is constant, that is, when present at all is always in this position, while a "contraction ring" may be in any portion of the uterus and occur more often after delivery of the baby, holding the placenta within the uterine cavity.

What are the signs and symptoms of this condition and what may be done toward its correction?

It is usually caused by a mal-position of the foetus or a prolonged, hard labor, hence it is not usually found in quick normal labors. The patient progresses rather slowly but the cervix gradually dilates and the head comes down through the superior strait, after a sufficient length of time (very often pituitrin is given in the interim) no further progress is made.

Before forceps are applied (which seems the natural thing to do) the perineum is well dilated and the gloved hand passed along the head and neck to the lower uterine segment and if this ring is present forceps should not be used until the ring is thoroughly dilated, for a very moderate pull would fracture or dislocate the cervical spine. Once you feel this ring it is always readily recognized, and at the same time realize you could never deliver the child through it without doing fatal damage to

the passenger and probably rupturing the uterus. If at this time you will have the patient given deep ether anesthesia and ephedrine hydrochloride gr. $\frac{1}{4}$ by hypodermic, or follow the suggestion of M. Pierce Rucker of Virginia, by giving five minims of adrenaline solution and do not attempt any manipulation until deep anesthesia is obtained, the ring is easily dilated and delivery can be made by podalic version or even by the application of forceps.

Thousands of babies are killed and many mothers injured yearly from the lack of knowledge of this grave problem.

It is presumed you are fully conversant with the use of forceps in this malady. Scanzoni probably more than any others, has successfully described their use, but

many improvements have from time to time been advocated, notably—Bill of Cleveland, Seides of New York, De Lee of Chicago.

It has been our policy to apply and re-apply the forceps keeping in the plane of the sagittal suture, never using any force to turn the head. On numerous occasions I have reapplied the forceps as many as six times with good results.

We often, also, apply mid-forceps to turn the head to its proper position and engage it, and then discard instruments allowing the head to deliver spontaneously.

A brief resume of the last 275 private cases delivered in 1928 in one hospital disclosed the following: forty-seven cases of occiput posterior in which some interference was necessary:

Primipara	Multipara	Inertia	Complication	Position	Version	Forcep	Man. Rot.
	Multipara	Bag		L.O.P.	Version		
	Multipara	Bag		L.O.P.	Version		
Primipara			Sl. Ring	R.O.P.	Version		
Primipara			Sl. Ring	R.O.P.		LOW	Man. Rot.
	Multipara	Man. Dil.		L.O.P.	Version		
	Multipara			R.O.P.	Version		
	Multipara			R.O.P.		LOW	
Primipara				L.O.P.	Version		
Primipara			S. BRe. Ring	R.O.P.		LOW	
						Mid. F. to	
				R.O.P.		LOW	Man. Rot.
	Multipara			R.O.P.	Version		
Primipara			Tonic	R.O.P.		M.F. to Turn	
Primipara				R.O.P.		L.F. 3 ap.	Man. Rot.
Primipara				R.O.P.		LOW	
Primipara				R.O.P.		LOW	
Primipara		Twins		L.O.P.		LOW	
Primipara				R.O.P.	Version		
Primipara				R.O.P.	Version		
	Multipara			R.O.P.	Version		
Primipara		Bag	Hem. & Ring	L.O.P.	Version		
Primipara		Bag	Cyanotic				
			Artf. Resp.	R.O.P.		High	
Primipara				R.O.P.	Version		
Primipara		Bag		L.O.P.		M.F. to Turn	
						LOW	
Primipara				L.O.P.		LOW	
	Multipara			L.O.P.	Version		
Primipara				R.O.P.			Man. Rot.
	Multipara		Prolapsed cord	R.O.P.	Version		
Primipara		Bag		L.O.P.			Man. Rot.
	Multipara			R.O.P.	Version		
	Multipara		Toxemia	R.O.P.	Version		
Primipara		Bag		R.O.P.			Man. Rot.
Primipara				L.O.P.	Version		
Primipara		Bag		L.O.P.		LOW	Man. Rot.
	Multipara			R.O.P.	Version		
Primipara				R.O.P.	Version		
Primipara			Cond. of Babe	L.O.P.	Version		
Primipara		Bag		R.O.P.		LOW	
Primipara				R.O.P.		M.F.	
	Multipara			L.O.P.	Version		
Primipara		Bag		L.O.P.		LOW	
	Multipara			L.O.P.			
	Multipara		Toxemia	R.O.P.			
	Multipara		Twins	S.L.A.	Version		
	Multipara			R.O.P.			
Primipara				R.O.P.		LOW	
	Multipara			L.O.P.		LOW	Man. Rot.
Primiparas							29
Multiparas							18
R.O.P.							29
L.O.P.							18
Version Primiparas							9
Version Multiparas							13
L.F. Primiparas							13
L.F. Multp sraai							
L.F. Multiparas							6
Mid-Forceps to turn							5
Manual Rotation							8

High forceps used once for a quick delivery when a version was not considered possible.

Mid-forceps used in five cases to turn and then low forceps applied later.

There was one foetal death due to cord compression in a very difficult case of retraction ring. No heart sound could be heard prior to the beginning of the manipulation for delivery.

DISCUSSION

DR. J. S. CAYCE, Nashville: Mr. President and Gentlemen: I have enjoyed and appreciated the paper as given us by Dr. Pride. There is, perhaps, no subject connected with obstetrics deliveries that causes men more concern than posterior-occipito cases.

In the beginning of man's practice he goes into obstetrics feeling, perhaps, the most unfavorable if an obstetric delivery is not posterior-occipito, but is a tranverse or breech. As you progress in your experience, you begin to feel that it is not that type of case that is going to give you the most trouble, but that in all probability the posterior-occiput.

The doctor has emphasized a few things in his paper that I want to stress and that is, first, sufficient time for the parts to dilate.

We are all acquainted with the fact that the foetus does not fit the cervix and very frequently the bag of water is ruptured early and this rupturing doing away with the wedge, prevents normal, smooth dilatation of the cervix and often hours is consumed in that, not only should we emphasize waiting in the first stage of labor, but time in excess of the normal time for the second stage is required, and I think lots of times we are inclined to be in too big a hurry to deliver our babies.

We also know that the woman very often has an inertia due to the fact that the fetaloid does not dilate the cervix, and the cervix is dilated by the force of the fibers pulling from above, and this brings about some of the complications, notably the Contraction Ring that Doctor Pride spoke of.

Another thing I want to emphasize in his paper and feel we can not emphasize too strongly is producing rest for the patient. This may be done by the use of morphine and magnesium sulphate given deep into the muscles either in the buttock or deltoid, and then as labor progresses analgesia may be given. That is carried on until dilatation is about complete, and then I think, perhaps, one of the best and easiest methods to at least try; first, is to get—increase the flexion of the head by the use of the fingers in the vagina against the head, as the Doctor has suggested. Perhaps, the easiest way to handle the head, after it is engaged, is the use of a modified Scanzoni. I think also that

that is facilitated not by the use of the ordinary forceps, that most of us have been in the habit of, from time to time, using, but by the use of a solid blade forceps invented by Dr. Tucker, known as the Tucker-McLean forceps. Dr. Bill, of Cleveland, Ohio, has added to that forceps a handle, similar to the handle used by the axis traction forceps. This forceps is applied not with any relationship to the position of the head but is applied with the flat side of the forceps in a parallel line, regardless of the position of the head, and then a slight amount of lifting is done with the forceps and the forceps generally rotate. After the forceps are rotated, the forceps are removed and placed on again, just as you would in any other anterior position. It is astonishing how easy it is to manipulate that head with the Tucker-McLean forceps, after adding the handle by Dr. Bill.

I appreciate the doctor's paper and enjoyed hearing him. (Applause)

DR. SIDNEY MEEKER, Memphis: I have enjoyed Dr. Pride's paper very much. I have known him for some twenty years and have learned many things through my association with him. I learned among other things, how to do a Version, at least, how to try to do a Version.

In discussing his paper, I want to say something about the dangers of Occiput Posterior positions. One of the baby clinics of Memphis report that 96 per cent of consultation for cerebral hemorrhage of the newborn, the position was one of Occiput Posterior.

A point in early diagnosis: a cervix that is so far posterior that it is hard to hook and bring forward is nearly always one of Occiput Posterior. In Occiput Posterior positions there is usually no or a very small "bag of waters," hence the dilatation is slow.

I believe many of my old cases of long duration of labor were in reality Occiput Posterior and that they finally rotated and I called them Anterior cases. In these cases of slow dilatation I very often use a Pillings bag to markedly shorten the first stage of labor. This bag expands and contracts with each pain and in that respect resembles the natural "bag of waters."

The past year or two I have been finding contraction (Bandl) and retraction (Pride) rings quite often. A Richmond, Virginia, doctor reports success with the use of Adrenalin MV to X to relax these rings. I have been using Ephedrine gr. $\frac{1}{4}$ to $\frac{1}{2}$ for the same purpose with excellent results because the relaxing effect lasts longer. Under Analgesia, one can recognize the Occiput Posterior position earlier because the patient does not resist examination so much.

I do not use the forceps as frequently as does Dr. Pride. I prefer the Podalic Version. Out of 125 recognized Occiput Posterior positions, with the cervix fully dilated I have done 110 Versions. The other 15 rotated promptly and delivered as Anterior positions. I used either a Braun or Pillings bag

in 39 of these cases, four of which rotated to an Anterior position. I have these bags with me if you gentlemen care to examine them.

DR. OLIVER, Paris: I don't feel like discussing the paper, but I want to ask a few questions. This is one kind of practice that we general practitioners have to do whether we want to or not, in small towns, in the country, and I do want to say I have been in practice about twenty years, and I do believe, with all due respect to the medical profession, that this is one branch of the practice that is neglected. It has been butchered and treated badly more than any one class or subject that I know of.

Now, I am glad that Dr. Pride brought it out, many physicians and midwives will get the stampede and get excited with any mal-position, want to do something right now, call a doctor, three miles away, fifteen minutes. I believe if we, as general practitioners, have a case, delivery of a child or occipito-posterior, or otherwise, that if we can wait three or four hours, that is our duty, because we should get the best man we can to do this.

To my mind, I don't think there is any comparison between this kind of work and removing acute appendicitis. Patients are taken many hundreds of miles to have acute appendicitis removed, but in the case of delivery, we call in our associates, who are not skilled in this kind of work. I am not trying to boast Dr. Pride or any other specialist, but I do believe in the humanity, if we can wait three or four hours, the best man in the country is not good enough to deliver for that woman who is trying to keep this world progressive.

I want to ask another question: If in determining this occipito-posterior position, many men today make examination through the vagina, personally, I plead guilty, I can not tell through the vagina. Through the rectum, I can not tell anything. So I ask Dr. Pride in closing his paper to explain or can tell the general practitioner if it would

be advisable to make all examinations through the rectum or how to reach diagnosis in this condition, and I want to insist that we, as general practitioners, do look after the babies. I have lost cases, I am sure, that should have been saved and I have known other men who have handled malformation cases that should have called in some one who is expert in this line and given them time. (Applause)

DR. W. T. PRIDE: Dr. Cayce's discussion of long labors and their management was instructive, especially as to the use of the flat bladed forcep.

The question of long labor is solved largely by analgesia. For many years we were afraid to use narcotics in labor cases for fear of retarding the case. Now we know that the proper use of hypnotics shortens the time of true labor almost half. There is no set rule on my service as to their use, each case being given whatever is necessary.

Dr. S. Meeker was modest in his discussion of the Podalic Version, for he is an expert in this particular operation. Version is the ideal operation in the majority of cases but as I said in my paper, there are few qualified to perform it.

Dr. Oliver sounded the keynote to the situation when he said, "when possible all labor cases should be in a hospital." This is not possible, but certainly all complicated ones should be.

As to vaginal against rectal examination. It is my custom to do a vaginal. Statistics will prove that when properly done better results are obtained from vaginal. A rectal improperly executed is the more dangerous. More harm can be done by the improper preparation of the case, as by a nurse sponging up, instead of down, etc. I have never been able to accurately diagnose a position per rectum.

Appreciate the discussion and trust I may have the pleasure of seeing you in Memphis.

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EDITORIAL

DR. JOHN A. WITHERSPOON

In the death of Dr. John A. Witherspoon on April 26, 1929, at his home in Nashville, Tennessee, the profession of medicine lost a great apostle and colorful personality. Through his veins coursed the blood of a distinguished Southern family, whose traditions and accomplishments were amply fulfilled in him.

He was born at Columbia, Tennessee, on September 13, 1864. His boyhood and young manhood being spent during the reconstruction days of the Old South, he was deeply imbued with the desire to aid his native section. This desire was reflected throughout his professional career in an endeavor to advance and elevate the standards of medical education.

His academic training was acquired in Austin College at Sherman, Texas. For one of his time his scientific preparation was unusually extensive and thorough. After being fostered by a distinguished preceptor, Dr. Robert Pillow, of Columbia, Tennessee, he entered the University of Pennsylvania, in 1884. The regular curriculum was accomplished and he graduated in a class of 99 in the year of 1887. His unusual mental endowment was manifest early in his medical career. He attained a scholastic average of 97.4 per cent, which fell short only four-tenths of one per cent in being the highest grade attained in his class. Later he pursued postgraduate work in the New York Polyclinic and studied abroad in Berlin and London.

His marriage in 1888 to Miss Cornelia Dixon, of Maury County, not only allied two great families, but also proved a fortunate

union which acted as an inspirational blessing to the end of his days.

He first began the practice of medicine in his native town of Columbia, and subsequently moved to Nashville, where his efforts were crowned with conspicuous success. Throughout his professional career he was actively engaged in, and prominently identified with, the educational advancement of medicine. While still a young man he rendered valiant service in the medical department of the University of Tennessee; first, as Professor of Physiology and later as Professor of Medicine. In 1894 he was elected Professor of Medicine and Clinical Medicine in the Medical Department of Vanderbilt University, which position he held until his death. His devotion to this institution and his untiring efforts in its behalf, constitute one of his greatest achievements. Through its numerous vicissitudes and, at times, precarious existence, he rendered invaluable aid (often at great personal sacrifice) essential to its continuance and progress. In his didactic work he reinforced a keen, scientific insight with impressive, fluent oratory, which inspired thousands of students with zealous love of medicine. His clinical observations were unusually accurate and acute.

In 1900 he was appointed one of five on the Council of Medical Education of the American Medical Association, representing the South and West. In this capacity he constantly sought to advance the standards of medical education throughout this vast territory. Through his aid and instrumentality numerous inferior medical colleges were eliminated and the study of medicine standardized throughout the South. In 1909 he was appointed by Secretary Knox, then Secretary of State, to deliver the acceptance address at the dedication of the George Washington Statue at Budapest, Hungary. He served as president of the Tennessee State Medical Association, the Mississippi Valley Association and, in 1912, was elevated by the medical profession of America to the highest position within its gift, namely, President of the American Medical Association, being the first Southern man thus honored and attaining the po-

sition by acclamation. As a public recognition of his unusual efficiency the honorary degree of LL.D. was conferred on him by the University of Georgia. Dr. Witherspoon not only attained distinguished success in the medical profession but also rendered signal service in the field of citizenship.

He was one of those rare persons in whom great versatility permits not only unusual vocational success but also avocational achievement. He was a valiant fighter in political matters when moral issues were at stake. Deeply inspired with love of home and country he was a staunch friend, a devoted husband and a kind and loving father. An ever-present patriotism was prominently displayed in untiring service in various capacities during the World War.

Dr. John A. Witherspoon was possessed of a pleasing, adaptable personality and was universally loved in his human contacts. He was an adornment to his profession and reached the pinnacle of success in his service to humanity. He is mourned and missed not only by the American Medical profession but also by thousands to whom he personally ministered untiringly.

EXPERT TESTIMONY

In the last few years the lay press has had considerable to say editorially and otherwise in criticism of expert testimony given by members of the medical profession. Judges and lawyers have found much to criticise also. This criticism applies particularly to the testimony given by so-called alienists in criminal cases. It is alleged that the defendant can get any kind of testimony that he is able and willing to pay for. This is a serious charge. It is not proven either, though there may be some ground for criticism.

The following is taken from the *Literary Digest* of March 30, 1929:

"The 'Expert Witness' Nuisance—One of the expert witnesses in a murder case, a Missouri alienist, has been suspended, we read, by the State Medical Society. This action, thinks the *San Francisco Chronicle*, 'gives reason to hope that the medical pro-

fession itself is about to do something toward abating the 'expert witness' nuisance." It goes on:

"The employment of highly paid physicians to befuddle courts and juries at so much per day is nothing less than a scandal in American administration of justice.

"The theory of the law is that witnesses are summoned to tell the whole truth with a view to getting at the vital facts and doing substantial justice. It shocks the public to feel that there are so-called 'experts' who are exempt from this rule, and are expected to give only such testimony as will help the side that is paying them a high fee.

"This sort of 'expert testimony' has brought a degree of contempt both on the administration of justice and on the profession of the 'experts.' It has developed a class of alienists openly on sale to whoever can pay their charges.

"The medical profession, in the main an outstanding example of high-minded devotion to exacting ideals, has frequently indicated its discomfort under the blot which the 'expert witnesses' cast on the public esteem to which the profession is in the main entitled. Now if the medical societies disown those members who auction their services in defense of criminals, the 'experts' will lose much of their value in court and nearly all of their professional standing.

"California's new insanity law has done much to mitigate the evils of the expert witness by requiring that the question of a criminal's mental capacity shall be tried apart from the facts of the crime itself.

"Massachusetts has gone even farther by providing that the question of insanity shall be determined by an impartial commission appointed by the State.

"But whatever steps are taken by the law do not excuse the medical profession from responsibility for its own members. If the Missouri action on the Hickman witness means that there is to be a house-cleaning in the matter of 'expert,' it will rebound to the prestige of the medical profession and to the improvement of criminal justice in America."

Alienists constitute a very small portion of the membership of organized medicine. Though the criticism falls upon all of us, it is unfortunate.

The instances in which the opinion of a doctor is indispensable in determining justice are multiplying with great rapidity.

The profession has taken steps from time to time to remedy the situation with regard to expert testimony. Very little headway has been made it is true, but legislative bodies may be more to blame for this than the doctors. At any rate it is important that steps be taken to keep the profession in the proper light before the public and to remedy conditions where necessary.

THE CENTENNIAL CELEBRATION

A great deal has been said from time to time in the House of Delegates with reference to the celebration of the hundredth anniversary of the organization of the Tennessee State Medical Association.

Not a great deal has been said about it on the floor of the general meeting or in the JOURNAL.

It is thought that the importance of the occasion merits repeated mention in the JOURNAL during the year.

Many of our members may not know that a committee on medical history has been at work for a number of years collecting data on the history of medicine in Tennessee for the century which ends next year.

The personnel of the committee has changed from time to time by reason of deaths but continuous progress has been made. The committee as constituted at present is as follows:

Drs. G. C. Savage, Chairman; Duncan Eve, Sr., S. R. Miller, C. N. Cowden, and W. K. Sheddan.

The House of Delegates at the last meeting clothed this committee with very broad powers. It will present at the next meeting of the state society a printed volume that every member will want in his library.

It is hoped that the entire membership will enter into the spirit of this occasion.

The suggestion has been made that each local society might be interested in prepar-

ing an exhibit.

The roll of membership in the Tennessee State Medical Association for the past ninety-nine years contains the names of many great men who have made real contributions to the progress of medicine. Only a portion of these have been located in the larger cities. Many men of distinction in medicine have been located in the smaller towns and rural communities of the state.

It is suggested that each society appoint a committee for the purpose of giving consideration to this suggestion. We feel certain that ample space for such exhibits will be provided by the committee on arrangements.

It will do all of us good to look backward once in a hundred years. It will be a source of inspiration, and goodness knows we need it.

It will stimulate in us a greater pride in our profession and its achievements, and we need that.

We may even get suggestions that will help to guide our step in the future and we need all the wisdom that can be had on this. So, let's all enter into the labor and spirit of the occasion and make the event one that will never be forgotten.

1929 STANDING COMMITTEES

COMMITTEES ON SCIENTIFIC WORK

H. H. Shoulders, <i>Chairman</i>	Nashville
S. F. McIntosh.....	Chattanooga
E. R. Zemp	Knoxville
A. F. Cooper.....	Memphis

COMMITTEE ON MEMOIRS

W. K. Sheddan, <i>Chairman</i>	Columbia
H. B. Everett.....	Memphis
Victor Williams	Chattanooga
G. W. Moody.....	Shelbyville
C. P. Fox.....	Greenville

COMMITTEE ON CANCER

Battle Malone, <i>Chairman</i>	Memphis
E. T. Newell.....	Chattanooga
A. G. Kern.....	Knoxville

COMMITTEE ON MEDICAL DEFENSE

S. R. Miller, <i>Chairman</i>	Knoxville
H. H. Shoulders.....	Nashville
Jere L. Crook	Jackson

COMMITTEE ON HOSPITALS

Robert Caldwell, *Chairman*.....Nashville
R. B. Wood.....Knoxville
E. H. Baird.....Dyersburg
O. N. Bryan.....Nashville
R. L. Jones.....Nashville
E. C. Ellett.....Memphis
B. L. Jacobs.....Chattanooga

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

John Revington, *Chairman*.....Chattanooga
L. L. Sheddan.....Knoxville
W. L. Williamson.....Memphis
Duncan Eve, Jr.....Nashville
L. E. Burch.....Nashville
L. T. Stem, President (*ex-officio*).....Chattanooga
H. H. Shoulders, Sec'y (*ex-officio*).....Nashville

COMMITTEE ON PUBLIC HEALTH

T. B. Yancy, *Chairman*.....Kingsport
E. A. Gilbert.....Chattanooga
K. S. Howlett.....Franklin
G. W. Brasher.....Jackson
J. L. Morgan.....Memphis

COMMITTEE ON MEDICAL EDUCATION

J. F. Gallagher, *Chairman*.....Nashville
J. L. Johnson.....Chattanooga
Britt Burns.....Memphis

LIAISSON COMMITTEE ON PUBLIC HEALTH

G. R. McSwain, *Chairman*.....Paris
B. S. Rhea.....Lebanon
John Steel.....Chattanooga

COMMITTEE ON MEDICAL HISTORY

G. C. Savage, *Chairman*.....Nashville
Duncan Eve, Sr.....Nashville
S. R. Miller.....Knoxville
C. N. Cowden.....Nashville
W. K. Sheddan.....Columbia

STATE TUBERCULOSIS HOSPITAL COMMISSION

J. O. Manier, *Chairman*.....Nashville
W. C. Dixon.....Nashville
George Williamson.....Columbia

CENSUS CORRECTION

HAMILTON COUNTY

Hewitt, H. P. Ob. 608 Med. Arts Bldg. '00 '27

DEATHS

Dr. Cooper Holtzclaw, 68, died at his home in Chattanooga May 19, after an illness of several months.

Dr. Holtzclaw graduated from the Emory University School of Medicine, Atlanta, in 1882.

Dr. J. O. Woods, 48, died June 4 at his home in Elizabethton. He graduated from the Lincoln Memorial University Medical Department, Knoxville, in 1907.

CORRECTED ROLL OF COUNTY SOCIETIES

Below we have attempted to list all county officers and meeting dates. The meetings are held at the county seats unless otherwise stated. Street addresses given in large cities.

We would like to have this list complete and will appreciate any help the officers may render in making it so.

County	President	Secretary	Meeting Date
Anderson	H. F. Stiltner, Windrock	J. S. Hall, Clinton	1st Monday, 2 P.M.
Bedford	John W. Sutton, Petersburg	W. H. Avery, Shelbyville	3rd Thursday, 2 P.M., Dr. Ray's office.
Benton	See Carroll County.		
Blount	K. A. Bryant, Maryville	J. A. McCulloch, Maryville	Every Thursday, 8 P.M., First Natl. Bank Bldg.
Bradley	W. H. Sullivan, Cleveland	E. R. Ferguson, Cleveland	1st & 3rd Thursday, 7 P.M., Court House.
Campbell	J. W. Presley, Pioneer	F. A. McClintock, Newcomb	
Carroll		A. C. Elinor, McKenzie	Carroll, Weakley, Benton, Henry counties, 2nd Tuesday, McKenzie.
Carter	J. L. Cottrell, Elizabethton	E. T. Pearson, Elizabethton	1st Monday, 7:30 P.M., First Natl.
Cheatham	W. S. Lockert, Ashland City	P. L. Pitt, Ashland City	Bank Bldg.
Chester		J. D. Anderson, Henderson	
Claiborne	See Hancock County.		
Clay	See Macon County.		
Cocke	A. L. Proffitt, Newport	J. E. Hampton, Newport	1st Tuesday.
Coffee	R. L. Dossett, Tullahoma	E. P. Vaughan, Manchester	1st Thursday.
Crockett	See Dyer County.		
Cumberland	E. W. Mitchell, Crossville	V. L. Lewis, Crossville	Cumberland, Overton, White counties, 3rd Thursday.
Davidson	J. O. Manier, Doctor's Bldg.	Sam P. Bailey, Doctor's Bldg.	Every Tuesday, 8 P.M., Doctor's Bldg.
Decatur		J. L. McMillan, Decaturville	
Dickson		R. P. Beasley, Dickson	
Dyer, Lake and			
Crockett	C. A. Turner, Dyersburg	E. H. Baird, Dyersburg	1st Thursday, monthly.
Fayette		J. W. Morris, Somerville	Fayette-Hardeman, 1st Thursday, monthly.
Franklin	L. A. Templeton, Winchester	Jno. P. Grisard, Winchester	Last Friday, monthly, 7 P.M., Court House.
Gibson	W. C. McRee, Trenton	George E. Spangler, Humboldt	
Giles	A. M. Allen, Buford	G. D. Butler, Pulaski	
Greene	L. E. Coolidge, Greeneville	M. A. Blanton, Mosheim	2nd Tuesday, 7 P.M., monthly.
Hamilton	J. H. Revington, Volunteer Bldg.	S. F. McIntosh, Volunteer Bldg.	Each Thursday, 8 P.M., Manufacturers' Assn. Bldg.
Hamblen	Wm. E. Howell, Morristown	C. T. Carroll, Morristown	
Hancock, Claiborne, Union		I. N. Ford, New Tazewell	2nd Monday, monthly.
Hardeman	See Fayette County	J. Y. Alexander, Middleton	1st Tuesday in Jan., April, July and October, Bolivar.
Hardin, Lawrence, Lewis, Perry, Wayne	J. T. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tuesday.
Hawkins		S. Lyons, Rogersville	
Haywood	J. M. Chambers, Brownsville	J. L. Edwards, Brownsville	Last Tuesday, monthly, 7 P.M.
Henderson		J. F. Goff, Lexington	
Henry	R. G. Fish, Paris	A. A. Oliver, Paris	(See Carroll County)
Hickman	C. V. Stephenson, Centreville	L. F. Prichard, Only	
Humphreys		W. W. Slayden, Waverly	
Jackson	J. D. Quarles, Whitleyville	L. R. Anderson, Gainesboro	1st Friday, monthly, Court House. (See Macon County.)
Jefferson		B. M. Tittsworth, Jefferson City	
Knox	Ray DePue, West Church St.	Jesse C. Hill, 4323 Lyons View	Every Tuesday, 8 P.M., Medical Bldg.
Lake			(See Dyer County.)
Lauderdale		W. V. Sanford, Ripley	2nd Thursday, monthly.
Lawrence, Lewis, Perry, Wayne	T. J. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tuesday, monthly.
Lewis, Perry, Wayne, Hardin			
Lawrence	T. J. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tuesday, monthly.
Lincoln	D. T. Hardin, Fayetteville	J. V. McRady, Fayetteville	
Loudon	W. H. Harrison, Loudon	J. G. Eblen, Lenoir City	1st & 3rd Thursdays, 7 P.M., monthly, Loudon and Lenoir City, alternately.
Macon	M. H. Allen, Lafayette	P. East, Lafayette	1st Wednesday, each quarter.
Madison	J. R. Thompson, Jackson	B. C. Arnold, Jackson	1st & 3rd Tuesday, 7:30 P.M., Y. M. C. A.
Marshall		J. A. Hardison, Lewisburg	4th Thursday, monthly.
Maury	Watt Yeiser, Columbia	W. K. Shedd, Columbia	2nd Monday, 11 A.M., monthly, Elk Lodge Room.
Monroe	H. C. Shearer, Madisonville	H. M. Kelso, Madisonville	2nd Tuesday, Aug., Sweetwater.
Montgomery	C. N. Keatts, Clarksville	Bryce F. Runyon, Clarksville	3rd Thursday night, monthly.
Morgan		J. F. Love, Lancing	
McMinn	T. R. Nankivell, Athens	C. O. Foree, Athens	2nd Thursday, 2 P.M., Dr. Nankivell's office.
McNairy	R. M. Hendrick, Selmer	H. C. Sanders, Selmer	3rd Thursday, monthly.
Obion	C. B. A. Turner, Union City	F. B. Kimzey, Union City	
Overton	See Cumberland County	A. B. Qualls, Livingston	3rd Friday, monthly.
Perry, Wayne, Hardin, Lawrence, Lewis	T. J. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tuesday, monthly.

County	President	Secretary	Meeting Date
Polk	C. W. Strauss, Copperhill	F. O. Geisler, Isabella	1st Thursday, 1:30 P.M., monthly.
Putnam	H. H. Taylor, Cookeville	C. P. Martin, Cookeville	1st & 3rd Tuesday, 1 P.M., Red Cross Rooms.
Roane	R. E. Regester, Rockwood	T. H. Phillips, Rockwood	3rd Tuesday, monthly.
Robertson	J. S. Freeman, Springfield	W. F. Fyke, Springfield	1st Monday, 7:30 P.M., Central Hotel, monthly.
Rutherford	J. A. Scott, Murfreesboro	C. S. Kinzer, Johnson City	1st & 3rd Tuesday, Medical Arts Bldg.
Sevier	O. S. McCown, Bk. of Com. Bldg.	A. F. Cooper, Bk. of Com. Bldg.	1st Friday, monthly.
Shelby	R. E. Key, Monoville	B. J. High, Elmwood	1st Friday, monthly.
Smith	L. M. Woodson, Gallatin	Jno. R. Parker, Gallatin	1st Wed., 1:30 P.M., monthly.
Sumner	See Hancock County	John S. Harris, McMinnville	2nd Thursday, at noon, Hotel Jno. Sevier.
Union, Hancock, Claiborne	See Hancock County	John S. Harris, McMinnville	1st Wed., 1:30 P.M., monthly.
Warren	C. W. Friberg, Johnson City	Edward T. Brading, Johnson City	2nd Thursday, at noon, Hotel Jno. Sevier.
Washington	J. E. Mathis, Bearden	S. E. Gaines, Sparta	2nd Thursday, monthly, Dr. Gaines' office.
Wayne, Hardin, Lawrence, Lewis, Perry	T. J. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	4th Tuesday, monthly.
Weakley	T. B. Wingo, Martin	J. E. Taylor, Dresden	3rd Wed., May, Aug. & Nov., at Martin. Joint scientific meetings monthly at McKenzie.
White	J. E. Mathis, Bearden	S. E. Gaines, Sparta	2nd Thursday, monthly, Dr. Gaines' office.
Williamson	K. S. Howlett, Franklin	K. S. Howlett, Franklin	2nd Tuesday, monthly.
Wilson	R. L. Witherington, Lebanon	J. R. Bone, Lebanon	1st Wed., 10:30, monthly.

MEDICAL SOCIETIES

Five County Society.—The May meeting was held in Waynesboro on the 28th. The following papers were read:

"Eruptions," by Dr. G. N. Springer, Hohenwald. Discussed by Dr. W. I. Farris, Clifton.

"Coronary Thrombosis," by Dr. O. N. Bryan, Nashville. General discussion.

"Treatment of Tetanus," by Dr. C. C. Stockard, Lawrenceburg. Discussed by Dr. W. C. Boyce, Flatwoods.

"Ileocolitis," by Dr. T. J. Stockard, Lawrenceburg. Discussed by Dr. A. D. Cole, Loretto.

Robertson County.—The Robertson County Medical Society held its regular monthly meeting on May 21 at Perry's Park. The members of the society and visitors enjoyed a luncheon at noon and the program was held in the afternoon.

Two visitors, Drs. R. C. Derivaux and S. John House of Nashville, were present and both delivered very interesting and practical addresses, the subject of Dr. Derivaux's address being "Some Phases of the Problem of Treatment in Syphilis," while Dr. House chose for his subject "Pneumonia." Both addresses elicited very liberal discussions and, on the whole, the meeting was one of the best held this year.

Dr. J. S. Freeman, President, presided, and the following members were present:

Drs. Freeman, Bradley, Kempf, Dye, Garner, Thomas, Jones, R. D. Moore, Reeves, Fentress, Rude, J. S. Hawkins and Fyke. The next meeting of the society will be held at the Watauga Sanitarium at Ridgetop, on June 25, when the members will be the guests of Dr. W. S. Rude.

Roane County.—The Roane County Medical Society held its regular monthly meeting in the Harriman Hotel May 21. Those in attendance were Drs. T. H. Phillips, J. C. Wilson, R. F. Regester, T. D. Bowman, Rockwood; J. B. Cross, F. A. Neergaard, W. W. Hill, Harriman.

Drs. L. L. Sheddan and Dewey Peters were visitors from Knoxville.

Drs. Sheddan and Peters read interesting papers. The former on "Cardiac Arrhythmia," the latter, "Malignancy of Uterus."

The next three meetings Roane County will join in with the societies of Loudon and Monroe counties, forming the Tri-County Medical Society, the first meeting of which is to be held at Lenoir City on June 20.

Madison County.—On May 7 Dr. G. H. Berryhill read a paper on "The Acute Ear." Discussion by Drs. Dancy, Sam Parker and S. M. Herron.

The meeting was one of the most enjoyable heard in some time, and practically the entire membership of the society was present.

On May 21 there was an open meeting to discuss subjects of general interest—no paper being scheduled.

Davidson County—On May 14th Dr. W. D. Haggard read a paper entitled "Vaginal Cystotomy for Removal of Skeleton of Ectopic Fetus."

On May 21st, Dr. H. E. Meleney read a paper entitled, "Demonstration of Amebiasis Cutis, by lantern slides." Dr. M. F. Engman, St. Louis, Mo., Professor of Dermatology at Washington University School of Medicine and President of the Medical Board of Barnard Free Skin Hospital, was a guest of the society.

On May 28th, Dr. R. C. Derivaux's subject was "The Differential Diagnosis of the Glycosurias." Discussion opened by Dr. John House.

Knox County—Dr. L. T. Stem, President of the Association, was present at the meeting on May 21st and gave a short address on "The Relation of the General Practitioner and the State Health Department, and a better understanding between the two."

Dr. S. F. McIntosh of Chattanooga gave a paper on "Cancer and Its Relation to Longevity."

May 28th, Dr. Joe T. Smith read a paper entitled "The Significance of Gross Non-inflammatory Intestinal Hemorrhage in Infancy and Childhood." Drs. Cross, Sheddan, Waterhouse and Nash lead the discussion.

June 4th, Dr. C. M. Armstrong presented a paper which was discussed by Drs. Young, R. B. Wood, Carmichael and Long.

Williamson County—On May 14th the meeting was held in Dr. Dan German's office. Dr. Haygood of the State Board of Health was an invited guest and presented an interesting paper.

Hancock-Claiborne-Union Counties—We have received the program for the year of the Hancock-Claiborne-Union Society. It calls for two papers at each monthly meeting. Dr. M. B. Carr and Dr. R. S. Monroe

have the June program, and Drs. J. F. Ausmus and J. C. Carr will prepare papers in July. The meeting date is the second Monday in each month. Interest is increasing in the work of the society and worthwhile papers are furnished at each meeting.

Benton-Carroll-Henry-Weakley Counties.—At a meeting of the Tri-County Medical Society, held in McKenzie, the principal features of the program were papers on "Mucous Colitis" by Dr. H. G. Rudner, Memphis, and one on "Oral Surgery" by Dr. Geo. Seeman, dentist of Nashville. Dr. John Shea of Memphis, and Dr. C. S. McMurry of Nashville, were present and took part in the general discussions.

In the absence of the president and vice-president, Dr. V. E. Massey of Huntingdon, and ex-president, presided.

Dyer-Lake-Crockett Counties—Dr. Eustis Seemes of Memphis and Dr. W. W. Holland of Dyersburg gave papers at the May meeting which was held at the Baird-Brewer Hospital.

Loudon County—The Loudon County Medical Society met with Dr. Joe H. Harrison May 2nd.

Several papers were read. Dr. Thomas Penland of Philadelphia was a guest. These meetings are held semi-monthly and the place of meetings alternate between Loudon and Lenoir City.

Southern Pediatric Seminar—The Southern Pediatric Seminar will hold its ninth session July 29 to August 10, at Saluda, North Carolina.

The Commonwealth Fund of New York, after thoroughly investigating the work of the seminar, thought enough of it to establish scholarships for every southern state, and they offer to pay the tuition and board for the two weeks' course for five men from Tennessee. These men to be from rural districts or from cities of less than three thousand.

Anyone interested should write to Dr. D. Lesesne Smith, Spartanburg, South Carolina.

MINUTES OF THE MEETING OF THE RAILWAY SURGICAL SECTION, TENNESSEE STATE MED- ICAL ASSOCIATION

APRIL 8, 1929 — JACKSON, TENNESSEE

Tennessee Railway Surgical Section of Tennessee State Medical Association met in regular annual meeting at Jackson, Tennessee, April 9th at 9:45 o'clock, 1929.

Minutes were read and adopted without ceremonies. The President, Dr. Duncan Eve, Jr., took the floor and read an address on "Compound Fracture of the Femur," which was discussed by Dr. Everett of Memphis.

Dr. Geo. McSwain, of Paris, Tennessee, was next called and read a paper on "A Few Fundamentals," which was fine and touched most all phases of fundamentals of surgery. Drs. Burch, Nashville, Jerry Crook, Jackson, Porter of Columbia, Eve of Nashville and S. R. Miller of Knoxville, discussed the paper extensively.

Dr. L. L. Sheddman of Knoxville was next heard and read a splendid paper on "Ethics of Industrial Medicine." Drs. Miller, Nash, Richard and Burch joined in the discussion.

This discussion was responded to by Dr. Sheddman which became very personal and drastic, but to the agreeable surprise of all present it was discovered that all discussing were friends, and did kiss and make up and all went away empty and feeling good toward each other.

Dr. Roy A. Douglas next read a fine paper on "Injuries of the Hand." Discussion opened by Dr. R. M. Little, Martin, Tennessee.

Dr. J. O. Gordon, of Memphis, read an essay on "Infections of the Hand in Railway Employees." Discussed by several men. Closed by Dr. Nash.

There were 48 members present.

This closed the scientific program which was pronounced extra good.

Election of officers for ensuing year:

Chairman, Dr. Brit Burns, Memphis, Tennessee.

Vice-Chairman, Dr. S. S. Miller, Knoxville, Tennessee.

Secretary, Dr. A. F. Richards, Sparta, Tennessee.

Delegate to National Railway Surgical Association, Dr. Duncan Eve, Jr., Nashville, Tennessee.

Alternate to National Railway Surgical Association, Dr. H. B. Everette, Memphis, Tennessee.

Meeting adjourned to meet next at Nashville, Tennessee.

.....
Chairman.

.....
Secretary.

NEWS NOTES AND COMMENT

The Historical Committee of the Tennessee State Medical Association met in the JOURNAL office, June 6, 1929, at ten o'clock, Dr. Savage in the chair, with the following members present: Drs. Savage, Sheddman, Miller and Cowden.

Motion was made and unanimously passed that Dr. W. C. Bilbro of Nashville be added to the committee.

In the discussion of the selection of the historian, two names were considered, Dr. Moore and Mr. DeLong Rice. Action postponed until the afternoon session.

Motion made by Dr. Sheddman, seconded by Dr. Miller to make historian custodian of the borrowed books and pamphlets and that he give a receipt for same and that they be returned after being used. Passed unanimously.

A motion was made and carried that we get a history of every county society that is in existence at the present time, and a roster of each society be printed in the historical volume. Motion prevailed.

Dr. Shoulders, editor of the JOURNAL, was selected to take charge of this section of the work. Motion made and carried that Dr. Savage be selected to get up a report of the advance made in medical organizations of the state for the past century.

Dr. Dan Moore met with the committee

in the afternoon session, and after going over the work to be done in getting up the data and the preparation of the material for the book, he was unanimously chosen for the work of editing our history, and another committee was appointed by the chairman consisting of Drs. Savage, Bilbro, and Cowden to make a definite contract with Mr. Moore.

A committee consisting of three members each for the three grand divisions of the state was selected to obtain a sketch of all the presidents, secretaries, and treasurers of the Tennessee State Medical Association, and to get as many photographs as possible for insertion in the book. For the eastern division, chairman, Dr. L. L. Sheddman of Knoxville, Dr. H. L. Fancher of Chattanooga, and Dr. C. P. Fox of Greeneville.

Middle Tennessee, chairman, Dr. G. W. Moody of Shelbyville, Dr. G. P. Butler of Pulaski, and Dr. W. H. Witt of Nashville. For West Tennessee, Dr. Jerry Crook of Jackson, chairman; Dr. John M. Maury of Memphis and Dr. I. A. McSwain of Paris.

Motion made and carried that we have a brief history of the advance made in medicine and in surgery in Tennessee in the last century. Dr. William Litterer of Nashville was selected for medicine and Dr. William Battle Malone of Memphis for surgery.

A motion was made by Dr. Sheddman, seconded by Dr. Cowden to pay expenses incurred by Dr. Miller of fifty dollars for stenographic work, stamps, etc., expenses up to date. Motion prevailed. Also motion prevailed that necessary expenses of the secretary be met in running his office, passed unanimously.

Motion made by Dr. Savage, seconded by Dr. Miller that a committee be appointed to get up list and short sketch of a few of the pioneers of medicine in the state of Tennessee, before the organization of the state society, passed.

Motion made to adjourn, subject to call of the chairman.

Dr. W. W. Wallace, formerly of Selmer, has joined the staff of the Western State Hospital at Bolivar.

Dr. A. B. DeLoach, of Memphis, has been re-named as a member of the State Board of Medical Examiners.

At a recent mass meeting of the physicians of Marshall county steps were taken toward the building of a county hospital.

Dr. S. A. Moffitt was chosen temporary chairman and a permanent organization will be effected later.

The Women's Auxiliary to the Knox County Medical Society met May 22nd at the home of Mrs. Oliver Hill. The following officers for the coming year will be installed: President, Mrs. R. G. Reaves; Vice-President, Mrs. K. C. Copenheaver; Recording Secretary, Mrs. H. H. McCampbell; Corresponding Secretary, Mrs. Eugene Abercrombie, and Treasurer, Mrs. W. A. Shelton.

Dr. Wade H. Garner has opened an office in Murfreesboro.

GLEANINGS

Abstract of original article, "Potassium Permanganate in the Treatment of Pneumonia," by John L. Chester, M.D., Detroit, Mich., appearing in the Annals of Internal Medicine, published by The American College of Physicians. Vol. 2, No. 11. May, 1929.

In the May issue of the Annals of Internal Medicine, published by The American College of Physicians, Dr. John L. Chester of Detroit, Mich., makes an interesting report on a series of cases of lobar and broncho pneumonia treated by him with a standard solution of Potassium Permanganate. In a word, he claims a lower death rate, earlier abolition of symptoms and the restoration of a normal chart, with convalescence eventuating in a shorter period of time and with

The Second International Malarial Congress is to be held at Algiers during May, 1930.

less fatigue, than he has experienced with any other method of treatment.

In 23 cases treated at Providence Hospital, Detroit, he reports but two deaths. In 10 cases treated at the county hospital, maintained by the local poor commission, there were 50 per cent recoveries in circumstances formerly considered to be potential 100 per cent fatalities. In ten control cases treated by other than the Potassium Permanganate method at the county hospital, all the patients died. The latter 20 cases were of the severest type, complicated with chronic heart disease, syphilis, and chronic alcoholism. All of the patients were run down physically and otherwise by excesses, poverty, and exposure.

Dr. Chester's method of administration was by injection as retained enemas, by means of a funnel and catheter, 3 to 5 ounces of the fluid being repeated every 3 to 4 hours for a period of from 6 to 10 days. Concise histories and progress notes are furnished on each of the cases, and they constitute possibly the most interesting part of the paper.

There is apparently no previous recognition of this therapy in American medical literature. It seems to be an English importation, the British Medical Journal of March 7, 1925, and March 12, 1927, containing the only known reports of similar exposition. Drs. H. W. Nott of Birkenhead, and Nelson J. Roche of Southsea, provided the English case reports, having been experimenting with the drug in pneumonic conditions since 1924.

In summing up, Dr. Chester succinctly outlines his findings in the following sentences:

"The suggestion would be that Potassium Permanganate has all the earmarks of having a true specific action on the micro-organisms of pneumonia. Apart from the English cases, I cannot find that a determined effort has been made to really test its efficiency. The very prevalence of an infection so virulent and intractable as this is, should be sufficient to encourage widespread

efforts to discover whether or not the hopes already engendered for the treatment are founded on good and sufficient premises."

PROFESSIONAL ORGANIZATIONS

Pointing to the effectiveness of a strong medical organization and the interest and activity of physicians generally in dealing with common problems through concerted effort, Newton D. Baker, of Cleveland, Secretary of War under President Wilson, urged a more effective organization of the lawyers of Ohio through the Bar Association, in speaking before committees of that organization and members of the Columbus Bar at a recent session in the capital city.

In elaborating on this idea, John A. Elden, Cleveland, President of the Ohio Bar Association, enumerated some of the problems now confronting the legal profession. Among these questions demanding more effective consideration by that profession were outlined by Mr. Elden as follows:

"First, to perfect an organization of lawyers which will be inclusive in this state of every lawyer in good standing.

"Second, to harmonize the differences which have grown up in our ranks, due very largely to economic conditions, caused by the overcrowding of the profession, with the resulting evil of undesirable publicity as to shortcomings and failures on the part of individual members or groups.

"Third, the practice of law is the prerogative and the right of the legal profession, and while we have been somewhat engaged in fighting among ourselves, barnacles have attached themselves to our good ship, barnacles consisting of crooked justice of peace courts, illegal practice by collection agencies, notary publics assuming the authority equivalent to federal judges, encroachment on the work of the profession by abstract title and trust companies, arbitration committees and commissions."

By indirection, the above objectives of the legal profession exemplify but a few of the reasons for strong medical organization.—*The Ohio State Medical Journal.*

ABSTRACTS OF CURRENT LITERATURE

ANESTHESIA

By Hugh Barr, M.D.

Medical Arts Bldg., Nashville

The Heart In Reference to Anesthesia, Robert William Langley, M.D., Los Angeles, California and Western Medicine, April, 1929.

The problem today is not the type of anesthesia, but the recognition of the exact physical status of the patient. A careful history should be taken to discover any latent cardiovascular disease. A physical examination of the heart should be carefully made. The electrocardiograph should be used in suspicious cases. Well compensated valvular disease is no contraindication to general anesthesia, although mitral stenosis and aortic regurgitation are more prone to cause heart failure than the others.

Few cases of coronary disease or angina pectoris can tolerate a general anesthetic. Auricular fibrillation and flutter, and complete heart block, are contraindications for general anesthesia, although some may tolerate it very well. Pulsus alternans and gallop are also of serious import.

Sinus arrhythmia and premature contractions are not necessarily serious. If blood pressure is below one hundred, spinal anesthesia is contraindicated. Severely damaged hearts may weather general anesthesia and surgery, only to die hours or days after operation.

He considers rising pulse rate and falling blood pressure as a dangerous state of affairs during anesthesia. The orthopneic position is best for cardiac cases with decompensation. The Trendelenburg position is not advisable. Gas anesthesia is only to be used by a trained anesthetist, as it causes anoxemia. Ether is better in the hands of a novice. Ethylene-oxygen-gas combination works better. Chloroform, excessive rebreathing and carbon dioxide are to be avoided.

Postoperative care of cardiac patients is very important. Position in bed must assure minimum of cardiac embarrassment. Morphine should be used unsparingly as the heart needs rest more than stimulation. He condemns the misuse of intravenous therapy as large quantities of fluid into the veins may prove a serious load on the heart.

CLINICAL PATHOLOGY

By R. H. Monger, M.D.

Medical Building, Knoxville

Relation of Streptococci to the Spinal Fluid in Experimental Poliomyelitis. P. K. Olitsky, C. P. Rhoads, and P. H. Long, New York. Jour. A. M. A., May 25, 1929.

The authors worked primarily on the theory of Rosenow that spinal fluid is a tissue in which the

virus of poliomyelitis (identified as the streptococcus) is present in this disease, and the following conclusions were reached. Twenty-four examinations of stained film preparations of centrifugated spinal fluids from nineteen monkeys showing characteristic experimental poliomyelitis, streptococci were not found. Twenty-two cultivation tests, including the use of Rosenow's yeast medium, were made with the fluids from seventeen of the monkeys, these also were negative for streptococci. The yeast medium itself contains streptococci; it therefore cannot be regarded as a medium of choice for the isolation of this micro-organism. The properties of a streptococcus isolated by Rosenow from the spinal fluid with poliomyelitis correspond in essential characteristics with those of a streptococcus obtained from the brain of a normal monkey and from the air of the laboratory. Cultures were obtained from Rosenow's laboratory and by injection into rabbits, which animals are generally considered as resistant to the virus of poliomyelitis, induces a purulent meningo-encephalitis, such as is often associated with streptococci septicemia. The microscopic appearance of the brain of such rabbits differs essentially from that of poliomyelitis in man and the monkey. In monkeys the inoculation of Rosenow's streptococcus intracerebrally does not bring out any difference in reaction in normal animals and those recovered from poliomyelitis.

This is in direct conflict with the susceptibility of normal and the insusceptibility of recovered monkeys to the virus of poliomyelitis. The microscopic change in the monkeys injected with the streptococcus is that of an acute purulent meningitis, which differs wholly from the nervous lesions present in poliomyelitis in man and monkey. Attempts to infect monkeys by means of intracerebral inoculation of spinal fluid derived from monkeys and human beings suffering from poliomyelitis have been uniformly unsuccessful. It is therefore apparent that spinal fluid cannot be regarded as a source of the infectious agent.

Experimental Transmission of Yellow Fever to Laboratory Animals. Stokes, Bauer, and Hudson, Amer. Jour. Trop. Med., 1928. 8, 103.

The authors report the results of experiments which they believe lead to the conclusion that yellow fever in West Africa has been successfully transmitted to monkeys of the species *Macacus Rhesus*. Although the strain of the virus with which these experiments were carried out originated from a mild and clinically almost undiagnosable case in an African, the following evidence supports the conclusion that the virus was that of yellow fever.

(1) It was obtained from a case occurring during an epidemic.

(2) It is transmissible from man to monkey, as well as from monkey to monkey by injection of blood or serum.

(3) It is transmitted by mosquitoes of the species *Aedes aegypti*.

(4) It is filtrable when in the circulating blood.

(5) Convalescent serum from a severe case of yellow fever in doses of 0.1 cc protects monkeys against infection with this virus, while 2 cc of normal human serum fails to give any protection.

(6) The clinical symptoms and the pathologic changes produced by this virus in rhesus monkeys are similar to those in human yellow fever.

(7) At the close of the studies with this strain two additional strains of the virus were obtained, both from fatal cases of yellow fever in Europeans in which the diagnosis was verified by post-mortem findings. Blood from each of these patients injected into rhesus monkeys were fatal. From one of these two patients the disease was also transmitted to monkeys by means of mosquitoes. The clinical course of the disease and the lesions produced by these two strains were similar to those caused by the strain which originated from a mild case and with which most of the work was done.

DERMATOLOGY

By E. E. Brown, M.D.
Doctors Building, Nashville

Emotional Stress and Allergic Cutaneous Manifestations, by Jeffreys C. Michaels, M.D., in *South-ern Medical Journal*, March, 1929.

He has noticed that in his practice many cases of chronic urticaria, eczema and pruritis have an underlying psychic state, such as grief, sexual conflict, worry, disappointments and other emotional stresses. He believes this is a predisposing factor upon which the allergic state develops. Six cases were reported and they seem to bear out his contention.

Dermatophytosis—According to Fred D. Wisman. (*Pennsylvania Medical Journal*, April, 1929).

Dermatologists are showing an unusual degree of interest in the subject of dermatophytosis. Dermatophytosis includes all those superficial dermatoses which are produced by the higher fungi. It thus excludes all of the affections caused by bacteria as well as the deeper fungous infections such as actinomycosis, blastomycosis, and sporotrichosis. For example, it might be said that eczema-like affections of the skin which can be shown to be caused by either yeasts or molds (using these terms in the broad, general way) are in the category of dermatophytosis.

The writer notes that there are two classes of dermatophytosis from the symptomatologic and diagnostic standpoints. In one group are the more distinctive forms which the general practitioner should diagnose for himself. In a word, such cases are betrayed by the fact that, first, they impress the medical observer as eczemas;

but, second, they have a definite predilection for intertriginous positions. When it is said that these cases resemble eczema, it is meant that the number of forms which dermatophytosis may take are just as varied as those which eczema may take. Erythematous, vesicular, pustular, crusting, squamous, and even indurative forms may be met with here as in eczema, depending upon the stage of the development of the disease. Also, additional forms such as are never seen in eczema may be encountered, such as the deep-seated, more or less isolated vesicles on the soles and palms which the dermatologist knows as dyshidrosis. Itching is invariably present, and sometimes is intense.

Weidman advises the reader to be on the lookout for and always suspicious of eczema-like eruptions which occur in intertriginous positions; as (1) between toes (less commonly between the fingers also), (2) in the groin between the thighs, and (3) in the axilla. The locality of the eruption will be much more informative than the anatomic changes, and this should be particularly emphasized. It is also essential to examine the margins of the eruption, for in dermatophytosis they are often sharp, and if this is the case the diagnosis is strongly fortified. Frequently, however, and particularly in the foot and hand cases, the margin is not sharp. Finally, the microscope should be used.

As to etiology, it may be said that heat and moisture are outstanding factors. C. J. White, of Boston, believes that leather and wool articles of clothing also play a part. Certain it is that high-strung, overperspiring individuals are liable. The affection is particularly one of the male sex and of early adolescence. The higher strata of society are affected much more frequently than the dispensary classes.

No less than fifteen different species of fungus have been described as causative in the United States, embracing both the hyphomycetes and the yeasts. In the order of frequency, trichophyton interdigitale, epidermophyton cruris, trichophyton ruorum, and various members of the trichophyton gypseum group are the important ones in the United States. It is not known that any of these organisms has a habitat in the outside world, but there can be no doubt that they are widespread in immediate human environment.

INTERNAL MEDICINE

By R. B. Wood, M.D.
Medical Building, Knoxville

"Mercurochrome as a Biliary Antiseptic, As a Means to Visualize Gall Bladders and as a Possible Form of Treatment in Cholecystitis." Lay Martin, M.D., and J. H. Hill, M.D. *Amer. Jr. Med. Sciences*, May, 1929.

Mercurochrome was administered orally to the point of salivation in thirteen individuals and the bile on recovery was never bactericidal or inhibi-

tory to growth and never contained visible traces of dye.

The treatment had no alleviating effect on eight patients with cholecystitis.

After intravenous injection of the drug in man, the dye may be recovered in the bile in 18 to 23 minutes, the bile being bactericidal and giving a positive test for mercury.

Mercurochrome may be recovered in the bile 18 to 20 hours after the intravenous injection, hence showing its storage in the gall bladder.

Eight individuals suffering with cholecystitis were given the drug intravenously with clinical cures in five and whose siphoned bile showed negative cultures, while three were unbenefited.

Experiments showed bile in the gall bladders of dogs eighteen hours after injection, the bile containing mercury and was bactericidal on attempts.

They also demonstrated shadows in the roentgen ray films due to storage of mercurochrome.

"Sclerosing Treatment of Varicose Veins," by Chemical Irritants.

Many different agents have been used in an attempt to cure this distressing condition. It was once thought that cure was effected by causing a coagulation of the blood but in 1894 DeLore showed that success was due to the reaction taking place in the vein walls.

Of the agents used may be mentioned mercuric chloride, sodium chloride, quinine urethane and sodium salicylate. In 1927 Kausch introduced the use of invert sugar which had all the advantages and none of the disadvantages of the others. Professor Nobl used this form of injections 10,000 times with a fatality, according to a review by R. C. Lagefel, M.D., and A. W. Dahlstrom, M. D. (Am. Jr. Med. Science, May, 1929).

Animal experimentation by Doerffel, Regard and others have shown that an adherent clot is formed in veins injected with sclerosing agents. Examination at site of injection due to chemical irritation reveals there is at first a marked swelling with desquamation of endothelial cells, which is followed by a trabecular deposit of fibrin and blood platelets.

Two factors cause the obliteration, one the intensive proliferation of the intima and another secondary formation of thrombi induced by the irritation.

A report with the use of invertose in 96 cases, by Logefeil and Dahlstrom with good results in 92 cases. The average number of injections for each case was between 5 and 6.

Of 546 injections four were followed by severe cramps, 19 by moderate cramps, 231 by slight feeling of tightness and discomfort and 292 without discomfort. Failure to obtain sclerosis after injection was noted in 17 and partial failure was noted after 56 injections.

15 injections were followed by varying grade of periphlebitis.

These results were far more satisfactory than by other agents.

"Cardio-Thoracic Distress." Dr. George Hermann. Med. Clinic of N. A., March, 1929.

Extra Cardial mechanical factors may give rise to sensations commonly ascribed to the heart and their differentiation is essential for rational treatment.

Heart pain of organic origin varies in character, severity, duration, location, radiation, associated symptoms, precipitating factors and treatment.

Heberden originally described two types of Angina Pectoris. In one spasmodic angina, strangling, constriction or oppression predominated; while in another paroxysmal pain, under the sternum with more or less radiation predominated. Of late years two important syndromes have been identified. One type associated with thrombosis of a large branch of a coronary artery, and in the other more or less sclerosis at the orifices of the coronaries with more or less aortic disease.

In addition we have myocardial exhaustion pain of exertion with the non-dilating coronaries, pain from chronic valvular disease, adherent pericardium, paroxysmal rapid rhythm disturbances and even those of a psychogenic basis.

The clinical description of Angina is given with the various therapeutic agents.

Coronary thrombosis may resemble angina, while acute circulatory collapse may be the outstanding symptoms complex. The pain, perhaps agonizing, is characterized by its persistence which may present waves of increased sharpness. Vasodilators, efficient in spasmodic pain, fail to relieve.

The pulse is usually rapid or slow, unlike that of spasmodic pain, is often imperceptible and the blood pressure very low. After a few days a slight temperature, leucocytosis and a friction rub appear. The electro-cardio graphic tracings show significant changes in 75 per cent of cases.

Benign precordial distress is frequently seen from gastric flatulence, a sensation of heaviness, with or without an occasional stabbing pain radiating to the left back. Standing, and the eructations of gas gives relief, while quick succussion palpitation thrusts under the left costal margins aggravates the condition. The symptoms usually appear in those of the hyperaesthetic habitus with an increased abdominal pressure and the pain arises from pressure on the diaphragm causing the already transversely placed heart to be shifted posteriorly and twisting the heart sufficiently to embarrass the coronary circulation.

Worthy of mention is the segmented pain from gall bladder pathology. A toxic type of precordial distress occurring in nicotine addicts is seen, the

nicotin unfavorably affecting the coronary circulation through the cardio-sympathetic nervous system. The fact of smoking and its definite causal relationship does not exclude coronary or other disease.

The slow irregular sinus arrhythmia with or without ectopics or premature contractions disappear after stopping use of tobacco.

A neurogenic form of precordial distress is frequently seen in those of nerotic temperament caused by premature or ectopic beats.

The cases of excruciating and continuous pain unrelieved by the usual procedures should be subjected to surgical procedure. The cases most favorable from the medical standpoint are those frequently recurring with severe pain without or with little evidence of organic changes in the aortic root, coronaries or in the heart muscle. The spasmodic is most amenable to treatment, while advanced coronary sclerosis with ischemia cordia intermittens, in valvular disease adherent pericardium, hypertension grave anemias and a few others are not benefited. It is noticeable that the ideal surgical is the ideal medical case.

The choice of surgical procedure must be guided by the condition of the patient. Where ideal requirements are most fully met the statistics of Cutter seems to indicate that extensive ablation of the entire cervical sympathetic chain, including the first thoracic ganglion first on one side and then on the other offer the greatest hope of lasting relief.

NEUROLOGY AND PSYCHIATRY

By H. J. Hayes, M.D.
899 Madison Ave., Memphis

Dangers of Diagnostic Lumbar Puncture in Increased Intracranial Pressure Due to Tumor of the Brain. Clement B. Masson, M.D., New York.

Clement summarizes as follows:

This study of 200 cases in which diagnostic lumbar puncture was performed gave the following results:

1. In 94 cases of verified intracranial tumors, in all of which more or less well marked signs of increased intracranial pressure were noted, and in 62 of which the growths were supratentorial, the removal of a small amount of fluid by lumbar puncture did not give rise to any serious symptoms. Occasionally, as after any lumbar puncture, headache became more severe for a few days and, in one case, weakness and rapid pulse ensued for a few minutes.

2. In 106 cases in which a tumor was suspected, but the diagnosis not verified, 79 of which were supratentorial, there was one instance (G. M., reported in detail) in which serious symptoms fol-

lowed the lumbar puncture and death occurred, possibly as a result of the withdrawal of spinal fluid. In the other 105 patients, symptoms of significance were not caused by the careful removal of fluid from the lumbar subarachnoid space.

3. None of the patients with verified or suspected infratentorial new growth, in whom lumbar puncture was performed before the diagnosis of expanding disease in the posterior cranial fossa had been made or suspected, developed any untoward symptoms after the puncture.

Although lumbar puncture should not be done in patients with symptoms of an expanding lesion beneath the tentorium, it is of interest that in 59 cases in this series, of which 32 were verified tumors in or around the cerebellum, serious symptoms did not follow the withdrawal of a small amount of fluid by lumbar puncture. In most of the 59 patients, the puncture had been performed before the diagnosis of a subtentorial tumor was made or suspected.

The study of 200 cases of tumor of the brain with increased intracranial pressure led me to conclude that in such patients there is not only danger from diagnostic lumbar puncture, if it is carried out with the patient in a horizontal position and with a needle of small calibre, and if no more than 5 cc. of fluid is removed. If the fluid is found to be under considerable pressure, it should be allowed to escape slowly, and the patient should always be kept flat on the back in bed for twenty-four hours.

OPHTHALMOLOGY

By Robert J. Warner, M.D.
Doctors' Building, Nashville

Some Clinical Observations on Levoglauconan (Linksglauconan) and Amin-Glauconan. E. C. Ellett, M.D., F.A.C.S., and R. O. Rychener, M.D. American Journal of Ophthalmology, May, 1929.

Case histories are given to illustrate the effect of levoglauconan (Linksglauconan) in simple glaucoma; of amin-glauconan in acute glaucoma; and of levoglauconan in acute iritis with posterior synechiae, and in iris adhesions accompanying injuries. In five cases of simple glaucoma levoglauconan lowered the tension transitorily, five cases were unaffected, one was permanently improved, but in no case was the tension permanently lowered by the use of glauconan alone. Amin-glauconan failed to reduce the tension in six cases of acute glaucoma. Levoglauconan was valuable in breaking fresh iris adhesions in acute iritis or uveitis, was of no value in separating old iris adhesions, and did not break up adhesions directly associated with injuries.

Changes in the Refraction of the Eye. Edward Jackson, M.D., F.A.C.S., Denver. American Journal of Ophthalmology, May, 1929.

The early impression as to refractive errors was that they were individual peculiarities not subject to important change throughout life. It has long been established that such changes do occur, and it is desirable to learn as much as possible about their dependence upon such factors as age, anatomic variation, use of the eyes, and general health. Analysis is here given of 729 cases in which the refractive condition was tested for a period of ten years or longer. The statistics are classified with regard to increase and decrease of spheric refraction, increase and decrease of total astigmatism, and variations in astigmatic axis. Illustrative cases show the importance to the patient of recognizing that such changes should be looked for and appropriately corrected from time to time. This paper contains the substance of an address delivered before the American Academy of Ophthalmology and Otolaryngology, October 15 to 19, 1928.

ORTHOPEDIC SURGERY

By Robert F. Patterson, M.D.
Acuff Building, Knoxville

Elbow Dislocations and Ulnar Nerve Injuries. Journal Bone and Joint Surgery. J. F. Cotton.

The writer calls attention to a small group of cases unnoticed by other authors:

"In children from nine to fourteen years of age dislocation at the elbow is not seldom accompanied by a tearing off of the isolated epiphysis of the internal epicondyle. In reduction of the dislocation this fragment may be reduced into the joint."

The author does not know how it happens—in the ten cases treated by him all showed sensory and motor loss but not complete paralysis. The displaced fragment lies between the ulnar and the trochlear surfaces. Fibrous tissue bands running from the fragment to the bony seat from which it was displaced produce a cross pull on the ulnar nerve, disturbing its function.

The diagnosis rests upon the absence of the internal epicondyle from its proper place added to the nerve lesion. The treatment consists in operative removal of the superfluous epicondylar epiphysis and freeing of the nerve.

Recovery may be prompt or tardy.

Three cases are reported in detail.

PEDIATRICS

By John M. Lee, M.D.
Doctors Building, Nashville

Intraperitoneal Transfusion of Blood. Mark L. Floyd, M.D., Amer. Jour. Dis. Children, May, 1929.

In the numerous articles concerning the value of intraperitoneal transfusion of blood that have ap-

peared in recent years, it has been claimed that the injected red blood corpuscles find their way into the blood, sometimes in a few minutes. Some claim that the fluid portion of the blood is absorbed first, and the corpuscles later. Good results are reported by most writers who also point out the ease, convenience and simplicity of the procedure.

The author claims that the results of this method of blood transfusion are not always certain, sometimes being too slow for therapeutic value. He cites the report of McKhann in which seven infants were given blood intraperitoneally, five of whom came to autopsy. Here blood in varying amounts was found in the peritoneal cavity from thirty-six hours to eleven days after injected.

Two cases are reported of blood transfusion into the peritoneum in infants that came to autopsy. In one case, one-half the injected blood was found in the peritoneum four days later. In another case at necropsy five days after blood was injected, practically all of the injected blood was recovered from the peritoneum. The author concludes that certain sick infants have the capacity to absorb blood from the peritoneum impaired, and they usually need transfusion most. It is advised that patients gravely ill be transfused by vein.

SURGERY — GENERAL AND ABDOMINAL

By John L. Dies, M.D.
1213 Exchange Building, Memphis

The Treatment of Injuries of the Chest. Bettman, Ralph B., American Journal of Surgery. April, 1929. Vol. VI, No. 4, pp. 449-454.

In injuries of the chest:

1. Immediately close all sucking wounds.
2. In the case of a closed pneumothorax which has been carefully diagnosed, if the injured person is markedly dyspneic, aspirate air from the pleural space.
3. In the presence of marked dyspnea following a chest injury, ascertain the intra pleural pressure by means of a manometer, and by inserting a hollow needle into the chest wall and seeing whether air is sucked in or forced out. If a positive pressure internal pneumothorax exists allow for the escape of the pleural air.
4. Hemorrhage in chest injuries is frequently from the intercostal arteries running under the broken ribs. These arteries are best controlled by encircling the entire rib with a heavy suture.
5. Large lacerations to the lungs should be repaired.
6. The thoracic cavity is as easily explored as the abdominal cavity.
7. Unless there is reasonable assurance that the results of a trauma to the chest are such that they will take care of themselves without interference,

trauma to the chest should be given the same benefit of early exploration as is now wisely accorded to trauma to the abdomen.

The Treatment of Raynaud's Disease by Resection of the Upper Thoracic and Lumbar Sympathetic Ganglia and Trunks. Adson, A. W. and Brown, G. E., *Surgery, Gynecology and Obstetrics*, May, 1929, Vol. XLVIII, No. 5, pp. 577-603.

In five cases of vasomotor neurosis of the spastic type, with symptoms (Raynaud's disease) there was marked and maintained vaso dilatation in the feet for periods as long as 3 years following operation. Vasomotor activity, as measured by the surface temperature, was absent or markedly diminished, with complete relief from the signs and symptoms of this disease.

Cervical sympathetic ganglionectomy by the anterior approach, carried out in two cases of Raynaud's disease of the hands, was unsuccessful in producing vasodilatation as in ameliorating the signs or symptoms. Intrathoracic sympathetic ganglionectomy by the dorsal approach was successful in two cases of Raynaud's disease affecting the hands, producing dilating effects on the arteries of the hands comparable to that observed in the feet following the lumbar operation.

The striking, maintained and unequivocal therapeutic effects of lumbar and dorsal sympathetic ganglionectomy in Raynaud's disease seem to warrant the belief that surgical control in this disease is an accomplished fact.

UROLOGY

By Tom R. Barry, M.D., F.A.C.S.,
and F. K. Garvey, M.D.
Medical Building, Knoxville

Blood Stream Infections in Urology. W. W. Scott, (*J. Urol.* Vol. XXL, May, 1929).

Routine blood cultures over a period of two years was made on every patient who developed a chill or temperature of 102F. or above. During this period 82 positive cultures were obtained.

All cases are reported in detail.

There were 16 different pathological conditions in which blood stream infection occurred. 51 of the 82 cases developed post-operatively.

B. coli was found in 33 cases and was most common organism. *Bacillus proteus* was found in

three cases, while in two others it was found in a mixed infection with staphylococcus and a streptococcus. There were 24 cases of coccal infections of the blood stream, and of these 24, 16 showed cocci in the urine. There were 15 mortalities which are given in detail.

He emphasizes the necessity of strict asepsis combined with extreme gentleness in treatment of all instrumentation of the urinary tract. He states that the majority of the blood stream infections are in reality bacteremias and are usually temporary and not dangerous. Filling of bladder and uretra with a strong antiseptic solution, previous to immediately following any instrumentation or operation is strongly advised.

Intravenous glucose is highly recommended to combat the septicemias after the primary focus has been removed. Intravenous mercurochrome is especially valuable in *B. coli* infection. There were 51 cases who did not receive mercurochrome with a mortality of 12. 21 were given this drug with 4 deaths. He suggests the use of 10-15 cc. of 1 per cent mercurochrome in all urological patients with temperature even before blood culture is positive.

In conclusion, he states that the urethra was probably the portal of entry in 80 per cent of cases.

Primary Tuberculosis of the Penis. Wm. Frontz and Robert McKay, M.D. (*So. Med. and Surg.*, Feb., 1929).

Diagnosis is usually confused with granuloma inguinale, Lues and Chancroid.

The condition usually follows direct inoculation from contact with a tuberculous cervix or by masturbation.

The greatest number of cases have been reported in Jewish children following ritual circumcision. In 342 cases of urogenital tuberculosis reviewed by these authors, only two cases of primary penile tuberculosis was found.

The mode of infection is usually by direct contact with a tuberculous sputum or cervix but occasionally by blood stream.

The appearance of lesion is not characteristic and cannot be differentiated from any of the commoner lesions except by biopsy.

He reports two cases in detail.

Heliotherapy is the most satisfactory form of treatment.

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No. 3

COMMON DISORDERS OF THE BILIARY TRACT: DIAGNOSIS AND MANAGEMENT*

CHARLES S. McVICAR, M.D.,

Division of Medicine, The Mayo Clinic, Rochester, Minnesota

FOR guidance and treatment of diseases of the gall bladder and bile ducts, dependence is still placed largely on deductions arrived at by correlating symptoms and signs with anatomic evidence of a lesion. This correlation is more intimate and convincing when bedside observations are compared with the evidence of pathologic change revealed at the operating table. During the last decade the clinician has been stimulated to clearer thinking and more guarded deductions by numerous studies in the physiology of the gall bladder and biliary tract. Special mention may be made of the researches of Lyon, and Graham and his coworkers 2, 3, 4; Whittaker, Boyden, Ivy and Oldberg, Sweet, and Mann and his associates, 5, 13-16, 19. These investigators are all keenly interested in clinical problems and we may look forward with confidence to their early decisions with regard to many points that are as yet controversial.

Two circumstances predispose to the development of cholecystitis, with or without stones; namely, infection and disordered metabolism, especially faulty metabolism of cholesterol. Infective organisms may reach the gall bladder through the bile or through

the blood supply. One or more of the dissolved constituents of bile, namely, pigment, bile salts, cholesterol or inorganic salts, may, because of excess, or some other factor affecting solubility, be precipitated. There is evidence that increased cholesterol content of the bile may lead to functional and anatomic injury of the wall of the gall bladder and thus cause the so-called strawberry gall bladder. Although it is generally acknowledged that gall bladder bile becomes concentrated because of the absorption of water and inorganic salts through the wall of the viscus, we still await proof that cholesterol, pigment or bile salts are absorbed. Sweet believes that all bile entering the gall bladder by the cystic duct leaves by lymphatic absorption. In any case, histologic examination of the "strawberry" gall bladder shows that the small lymphatics are choked by lipid material presumably originating in cholesterol. MacCarty 11, 12 showed that in about 4 per cent of strawberry gall bladders there were associated papillomas or localized pendulous areas of hypertrophy of the mucosa. The strawberry gall bladder may give rise to the so-called aseptic stone, although once stones have formed the mechanical irritation favors infection. The condition is not primarily a disease of the

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gall bladder itself, but represents the effect of a metabolic disharmony not yet explained. That this disorder of metabolism depends on the individual and not on the diet becomes at once apparent when it is remembered that the blood and bile cholesterol is increased in the expectant or lactating mother, but not in the father who eats at the same table. Although in theory there is the possibility of purely infective or purely metabolic disease of the gall bladder, in practice combinations often are encountered. Disordered metabolism, especially if it results in formation of stones, favors infection. Infection predisposes to precipitation. It is often stated that stagnation of bile predisposes to disease in the gall bladder. Perhaps it does, but in the complete stasis induced by compression of the common duct by a pancreatic neoplasm the wall of the gall bladder is characteristically free from disease and the contents of the viscus are free from the formation of stones. Neoplastic infiltration of the gall bladder is a less common cause of disease. Although malignant conditions often are associated with stones it is always difficult to establish a cause and effect relationship.

DIAGNOSIS

Dyspepsia.—In the diagnosis of disease of the gall bladder, the character of the dyspepsia, the history as regards painful episodes, the physical signs, the examination of duodenal contents and roentgenography all contribute. In any single case the diagnosis will depend on the evidence collected by every means, but it is convenient to discuss each factor separately. The dyspepsia is essentially one of intolerance to three types of foods: fats, coarse vegetables and sour fruits. When a patient complains that she cannot eat roast pork, boiled cabbage, or raw apples, we at once suspect cholecystic disease. The discomfort is experienced soon after taking food in contradistinction to the late or midmeal discomfort from peptic ulcer. The distress is described as distention or fullness in the epigastrium. To be of value in diagnosis, the dyspepsia must be intermittent, with longer or shorter periods of freedom. This distinguishes the

patient with cholecystic disease from the bloated and belching victim of digestive neurosis. Well advanced disease of the gall bladder may be present without dyspepsia.

Pain.—Another factor in diagnosis is the history of recurring periods of painful discomfort in the epigastrium or right upper quadrant. These spells may range from transient mild discomfort to the agonizing colic induced by the migration of stones. The most typical feature of this pain is its radiation, which the patient may describe with a characteristic gesture, pointing with the back of the left thumb to the right epigastrium and with the back of the right thumb to the lower right subscapular region. This "two-thumb" sign is of great value. Sometimes the pain arises posteriorly and is referred forward, either directly through the body or around the margin of the ribs. This localization and radiation of pain may not always be so striking, because pain may be felt in the left hypochondrium, or in the precordium, under the sternum, or elsewhere. With an atypical site and reference of pain a diagnosis of cholecystic disease must await other corroborative evidence.

Physical signs.—If present physical signs are useful. The absence of signs is not evidence of the absence of disease, even of empyema. Formerly, when only acute inflammatory disease of the gall bladder was recognized, local tenderness, rigidity and tumescence, as well as fever and leukocytosis were of greater relative significance. We now know that the preponderance of disabling discomfort is attributable to chronic rather than to acute cholecystitis. Local tenderness will be proportional to the severity of the inflammation, which may be acute, subacute or chronic, catarrhal, suppurative, ulcerating, gangrenous or sclerosing. It should perhaps be mentioned that jaundice is an infrequent sign in cholecystic disease and almost invariably points to a complication, for example, associated cholangitis, stone in the common duct or hepatitis. The occasional transient jaundice following very severe gall stone colic has not, I think, been satisfactorily

explained. It may be due to temporary stasis of bile induced by spasm in the duodenum or perhaps in the common duct.

Examination of duodenal contents.—There seems very little doubt that some information may be obtained by siphonage of the duodenal contents and careful microscopic examination of the sediment. This procedure requires the services of an expert technician, is essentially time consuming and correspondingly expensive. I believe that the experienced clinician seldom acquires, by this method, any information regarding the gall bladder, which enables him to amend or supplement the evidence collected by simpler procedures.

Cholecystography.—The diagnostic procedure, cholecystography, introduced by Graham, has achieved well merited prominence in diagnosis. Roentgenography, however, has another significant relationship to the differential diagnosis of cholecystic disease, since it is made use of in a high percentage of all cases to rule out organic disease of the stomach and duodenum. This phase of roentgenography rivals cholecystography in usefulness, and the two procedures must be considered as complementary to each other. It is perhaps too early to pass judgment on the relative merits of the intravenous and oral methods of administering the dye used in cholecystography. Each has its champions. What seems more important and most necessary are experience in technic and absence of prejudice in interpretation. The films must be good, the patient must not move and the clinician must keep in mind that in a certain proportion of cases a diseased gall bladder, even one containing stones, may give a normal response. If, therefore, a patient has the characteristic dyspepsia and pain, which experience has taught is associated with cholecystic disease, a normal cholecystogram does not warrant the exclusion of cholecystitis. On the other hand, when the history and general examination create a suspicion but leave a doubt, a positive cholecystogram may clear up the diagnosis, or a normal response may direct the search for other possible explanations for the complaint. Kirklin, in a study of

cholecystograms, finds himself depending less and less on such evidence as faint shadow, deformity of the gall bladder, delayed emptying, and so forth. He also finds that the tendency is now to rely on the simpler criteria, especially the presence or absence of a shadow.

ILLUSTRATIVE CASES

Case 1.—An attorney, aged fifty-four years, was first admitted to the clinic June 21, 1927. He had had indigestion for twenty-five years, with epigastric bloating half an hour after partaking of food. He had suffered from regurgitation soon after meals, when under stress. He complained of intolerance for cabbage, raw apples, pastry and fats. He had had occasional cramping pains across the epigastrium. Once he had been given a hypodermic injection.

A cholecystogram after administration of dye by the oral route showed normal response. Roentgenograms of the stomach and duodenum did not reveal abnormality. Analysis of gastric content after a test-meal revealed total acidity of 44 and free hydrochloric acid 28 in terms of tenth normal sodium hydroxide. The patient was introspective and apprehensive. Lavage of the stomach had been done. The second admission was March 18, 1928. He complained of diminished mental acuity, loss of energy and nervous exhaustion. The "spitting up," intolerance of fat and of coarse vegetables had continued. There was some local tenderness in the right upper quadrant of the abdomen. Cholecystograms, after administration of dye by the oral method and by the intravenous method, revealed a normally functioning gall bladder. Roentgenographic examination of the stomach and duodenum gave negative results. Rest and a bland anticonstipation diet did bring about improvement.

Operation was done March 30, 1928. The gall bladder was chronically inflamed and contained stones. There was a number of stones in the common duct. Cholecystectomy, choledochostomy and appendectomy were performed. The pathologist reported chronic catarrhal cholecystitis, graded 2;

multiple polyhedral stones, the largest of which was 12 mm. in diameter (some of the largest stones were in the common duct), and chronic catarrhal appendicitis. The patient was re-examined July 2, 1928, and December 3, 1928. Dyspepsia, pain and exhaustion had been relieved. Occasionally there still was "spitting up" under stress.

In this case, a normal cholecystogram hindered diagnosis and caused delay in treatment in a patient whose nervous instability was, in part at least, induced by serious organic disease.

Case 2.—A married woman, aged thirty-six, registered at the clinic January 10, 1927. She had had frequent attacks of pressing pain in epigastrium which "crowded" the heart. The duration of these pains had been fifteen to twenty minutes and for relief she had walked the floor, until she could belch. She had not had constipation, diarrhea, or intolerance to food. Spells had commenced fifteen years before, during pregnancy, and had recurred in succeeding pregnancies. Pruritus ani had troubled her.

The patient was 30 pounds overweight. Fractional analysis of gastric content after a test-meal revealed anacidity. The cholecystogram disclosed poor function. Roentgenograms of the stomach and duodenum gave negative results. The patient was admitted a second time on January 16, 1928, complaining of persistence of the spells of epigastric discomfort and cramps. The pain, sometimes, was referred from the epigastrium to the interscapular area. The patient had been dizzy and nauseated but she did not vomit or suffer from intolerance to food. She had fear of cancer, was nervous and apprehensive. Cholecystograms, after oral and after intravenous administration of the dye, disclosed nonfunction.

Operation was performed March 26, 1928, and a large flaccid gall bladder, containing stones, was found. Cholecystectomy and appendectomy were done. The pathologist reported chronic catarrhal cholecystitis, many stones, the largest of which was 1 cm. in diameter, and chronic catarrh-

al appendicitis. The subsequent report was of complete relief from dyspepsia and attacks of pain.

This patient was an obese Jewess with achlorhydria, pruritus ani and many evidences of an unstable nervous system. Cholesystography was of great assistance in arriving at a decision.

TREATMENT

Cholecystectomy.—In the treatment of cholecystic disease cholecystectomy seems the most appropriate procedure. It has been shown that man can dispense with a gall bladder, that a diseased gall bladder is usually functionless, that it carries a threat for the future, and that its removal constitutes appropriate prophylaxis against injury to the ducts and infection of the ducts.

Untoward conditions arising or persisting after cholecystectomy may be due to an erroneous or incomplete diagnosis, to delay in the institution of surgical procedures, to an incomplete operation or to accident. Failure to operate early enough may lead to the spread of infection to the ducts (cholangitis) or to extension to the liver itself. An incomplete operation may leave a stone in the common or hepatic duct, or occasionally in the stump of the cystic duct. A formidable, although infrequent postoperative complication is the occurrence of stricture of the common duct. Although stricture of the common duct may occur from cholangitis or the pressure of a deformed gall bladder in a patient who has not been operated on, it is very infrequent except as a postoperative accident. Pre-existing cholangitis may predispose to stricture. Perhaps the more important factors are the irritative action of escaped bile, disturbance of blood supply, hemorrhage, pressure from a drainage tube, or actual trauma. It is always significant if, after removal of the gall bladder drainage of bile persists for longer than ten or twelve days. If jaundice develops following delayed healing of a fistula, partial or complete occlusion of the common duct may be suspected. If the occurrence of jaundice is associated with colic in a patient who previously had had gallstones, there is ground for suspecting

that a stone in the common duct, either was missed at operation, formed afterward, or was swept down from the hepatic duct. However, such an opinion must be offered with reserve, because Fitts and I found that noncalculous stricture was associated with colic in about one-third of our cases. The surgical procedure in stricture has recently been reviewed by Walters. Apart from the risk of hemorrhage due to associated jaundice, repair of the bile ducts imposes on the operator a mechanical task requiring the highest degree of technical dexterity. Moreover, experienced judgment is often necessary to recognize and deal with unforeseen complications.

Rarely, colic and transient spells of jaundice have occurred following cholecystectomy when, at reoperation, neither stricture nor stone could be demonstrated. These cases responded satisfactorily to temporary external drainage of the common duct, as described by Judd.

Decholin.—Recently I have been using a drug which promises to be of value when it seems desirable to flush out the biliary passages. This remedy is prepared by a German pharmaceutical firm under the trade name of Decholin. It is the sodium salt of dehydrocholic acid, and is marketed in ampules suitable for intravenous injection. The recommended dose is from 0.5 to 2 gm. Reports on its clinical use have been made by Rusznyák and others. I have used the drug in fifteen cases²² and have found it to be nontoxic. Its effect, as I have observed it, has been to increase the volume of bile excreted. This increase in volume seems to be due to an increase in content of water. There is a latent period of seven to fifteen minutes following injection; then the volume output of bile is increased for a period of fifty to sixty minutes. The average increase is about 300 per cent over the normal output. Obviously, such an increase is associated with a corresponding increase in intraductal pressure. This increased pressure is shown by the force with which mucus plugs and debris are washed out by the augmented flow.

Obstruction of the ducts by neoplasm.—In addition to cholangitis, and the types of

stricture of the bile ducts that have been mentioned, obstruction from a malignant condition may be encountered. This malignant lesion may be in the ducts themselves at any point, may affect one hepatic duct while another escapes, or may arise in the ampulla of Vater, but the usual cause of neoplastic obstruction is carcinoma in the head of the pancreas embracing and occluding the duct. In such cases, the jaundice is characteristically painless at its onset, although as the disease progresses and before the inevitable fatal termination, there may be an extreme degree of suffering. When the common duct is occluded by a neoplasm, the obstruction is complete and persistent. In such cases bile will not be recovered by repeated duodenal drainage and repeated estimations of the level of blood pigment would show it to be maintained or rising. Because pancreatic carcinoma may be slow growing cholecystenterostomy is warranted, not only because it affords release from intolerable itching, but because it will relieve the liver from the threat of back pressure. In occlusion of the bile duct from neoplasm in the pancreas, the gall bladder may be enlarged and easily palpable. With such result of examination the diagnosis may be considered established; however, the absence of a palpable gall bladder does not exclude neoplasm, and a diagnosis may be ventured with confidence, if the duodenal contents are completely acholic, if the onset has been without pain and if there is deep serum jaundice which maintains its level, or rises from day to day.

In differential diagnosis intrahepatic disease must be considered; that is to say, that group of cases comprehended by the terms infectious, catarrhal or toxic jaundice. In these cases it is characteristic to find a fairly free flow of bile into the intestine, and when this is encountered in the presence of painless jaundice it is advisable to delay exploration, since surgical procedures on the jaundiced patient are always attended by the risk of hemorrhage.

Risk from hemorrhagic tendency in jaundice.—In measuring the risk of hemorrhage it has been customary to estimate the in vitro coagulation time of the blood,

When the coagulation time in the test tube is prolonged, there is undoubtedly a threat of hemorrhage, but a number of patients, with normal coagulation time, will show a tendency to bleed following operation. Coagulation time, therefore, is not entirely satisfactory as a measure of this threat. If the patient has a tendency to purpura this in itself is a significant danger signal, but even in the absence of purpura and with normal coagulation time, it must be acknowledged that the jaundiced patient is still an impaired surgical risk. In 1921 Walters published a detailed method for the preoperative preparation of jaundiced patients and introduced the intravenous method of administration of calcium chloride as an aid in the control of the hemorrhagic tendency. Besides the use of calcium, Walters recommended a high carbohydrate diet, the adequate administration of fluids, and careful observations to measure the bleeding tendency. Subsequent studies have shown a decrease in the mortality and morbidity following the institution of these methods of preparation. In emergencies, when the coagulation time is persistently prolonged or when the patient shows any tendency to bleeding, blood transfusion is resorted to. Powelson has recently conducted an investigation to determine the optimal time for operation following transfusion in jaundiced patients. His observations indicate that the effect of transfusion, as judged by coagulation time, is most apparent between the sixth and twelfth hours following transfusion.

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PAN-MURAL FIBROSIS OF THE BLADDER WITH SPECIAL REFERENCE TO TREATMENT*†

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THE recognition of pan-mural fibrosis of the bladder as a disease entity dates from Hunner's description in 1913, although undoubtedly its cystoscopic features were recorded many years before, by Nitze. A number of terms are employed to designate the condition such as submucous ulcer, pan-mural ulcer, elusive ulcer, submucous cystitis, interstitial cystitis and Hunner ulcer. Pan-mural fibrosis probably is the most appropriate and widely used designation.

PATHOLOGY

A description of the pathological condition is essential to an understanding of the symptoms and properly directed treatment. The lesion may be quite small, consisting of a limited area of fibrosis in the loose submucous areolar tissue. The typical lesion extends into the muscularis or even through to the serous coat. In addition to the fibrosis present there is usually a well marked lymphocytic infiltration. The overlying mucous membrane is involved to such a slight extent that the terms pan-mural and submucous seem very appropriate. Strictly speaking, it is not an ulcer in the sense of an open lesion. Over-distention of the bladder may result in an open fissure in the inelastic fibrotic area, and this has probably given rise to the use of the term "ulcer." The submucous fibrosis may be quite thick and a large portion of the bladder musculature may be involved. Bumpus has recently referred to this as a chronic myositis of the bladder musculature, and it is the opinion of Braasch that the disease probably involves the entire bladder even in those cases where the lesion appears small and localized on cystoscopic examination. This would explain the very unsatis-

factory results following surgical resection of the apparently involved area. Rosenow reproduced the lesion experimentally in animals by inoculating them intravenously with a strain of streptococcus obtained from foci of infection from patients having the disease. Hinman has accomplished the same result with a streptococcus cultured from an excised bladder lesion. This represents the only known direct hematogenous infection of the bladder, according to Young.

SYMPTOMS

The symptoms are usually very distressing and in advanced cases approach the severity of the bladder symptoms of urinary tuberculosis. The onset of the frequency is usually gradual, the progress is slow and within a few months to a few years marked diurnal and nocturnal frequency will be noted. The absence of nycturia rules out pan-mural fibrosis, as these patients always have the intense frequency at night as well as day. The number of micturations in twenty-four hours may reach 100 or more. Relief follows emptying the bladder and as the viscus begins to refill, thereby creating tension on the sensitive area, the intense desire to void recurs. Women are more subject to the disease and it is most often found in the third to the fifth decades. It is very uncommon in men. Of the five cases herewith discussed all were women, the youngest being thirty-five. Besides the marked frequency these patients often complain of tenderness in the bladder region associated with sharp lacerating pains. The loss of sleep and ceaseless discomfort prey on the nervous system. They become irritable, depressed, and like the victims of tic douloureux, may seek relief through suicide, as was the case of one of the five here reported. The urine is usually negative which constitutes an important diagnostic feature. A

*From the Section on Urology, The Polyclinic.

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few red blood cells are occasionally present. Gross hematuria is rare.

DIAGNOSIS

The diagnosis can frequently be very well established from the clinical history and negative urinalysis. The cystoscopic examination will reveal a very limited bladder capacity—usually not more than 150 cc, and frequently much less. (Fig. 1.) The first impression on cystoscopic inspection is that the viscus is normal, except for the limited capacity; the ureteral orifices appear normal and the trigone and urethra are not inflamed. However, there are three features from the cystoscopic standpoint which will confirm the clinical suspicion of the disease:

1. With the bladder filled a pinkish area may be found, usually single but sometimes multiple, and varying in size from a few millimeters to two or three centimeters in diameter. These areas are usually in the fundus and anterior wall of the bladder and are rarely found in the bladder base.

2. On distention of the bladder the patient will complain of intense pain and if the distention is continued for a moment longer the pinkish area will be seen to fissure and bleed slightly. On account of the marked pain, the cystoscopic features are best demonstrated under general or spinal anaesthesia.

3. If the area is touched with the beak of the cystoscope it will be found extremely sensitive. On re-examination at some subsequent time the fissure will have disappeared and the lesion may not be discernible. This has given rise to the term "elusive ulcer."

TREATMENT

Obviously bladder irrigations, which are of marked benefit in non-tuberculous cystitis, will avail little in the treatment of pan-mural fibrosis. The pathology is beneath the surface. The results of surgical excision of the ulcer have been very disappointing. Surgical treatment has been generally abandoned because in a high percentage of cases the symptoms recur and little or no benefit is ultimately experienced. Fulguration of the lesion has afforded relief in a number of instances, and in one of

our cases relief for a period of eighteen months followed fulguration. The treatment was repeated and until the present time no further trouble has occurred. Regardless of what type of therapy is employed, a permanent cure is unusual.

The most satisfactory method of treatment in our experience has been gradually increasing hydraulic distention of the bladder. The forcible distention breaks up the fibrous contracture in the region of the submucous fibrosis thereby producing an increased blood supply and permitting a restoration of the normal bladder capacity. This procedure must be carried out very gradually and over a considerable period of time. (Fig. 2.) An increase in capacity of 30 cc to 150 cc a week should be highly satisfactory. In one of our cases the bladder capacity at the original examination was 45 cc. After two months of treatment the capacity was 315 cc and the nycturia, which was usually from 40 to 50 times, had reduced to four or five times. Unfortunately, the beneficial results thus obtained are not permanent, and, depending on the recurrence of symptoms, the treatment should be repeated as indicated.



FIG. 1 Cystogram illustrating the maximum distention possible in a case of pan-mural fibrosis. (Case No. 26138.)

ABSTRACT OF CASES

Case No. 22106, a white woman, age 47, complained of a constant desire to urinate, which began about three years before. The frequent desire to urinate necessitated voiding from twelve to fifteen times at night and every fifteen to thirty minutes during the day. Immediately after micturition there was a brief period of relief soon followed by a recurrence of the desire to void. Four or five cystoscopic examinations had been made elsewhere and she was assured that the urinary tract was normal. There were stabbing pains in the region of the vagina, most marked on stooping over. All of the symptoms seemed worse at night. One year before she began taking narcotics because of the pain and discomfort. She had been in bed most of the time the past two months. Because of the complaint this patient had been subjected to several surgical procedures without relief. Two years before the uterus, both tubes, the right ovary and the appendix were removed. Ten months before a urethral caruncle was removed. Two months before an anterior colporrhaphy was done.

On examination at the Polyclinic there was definite local tenderness in the suprapubic region. There was a moderate cystocele. Residual urine amounted to 90 cc. A dental roentgenogram disclosed three teeth with periapical infection. Urinalysis revealed specific gravity 1014, acid reaction, no albumen, no sugar, two blood cells per high power field and an occasional pus cell. On cystoscopic examination the bladder capacity was 135 cc. On distention extreme pain was experienced and a small reddish area in the dome of the bladder was visible which fissured and bled on over-distention. It was extremely sensitive on contact with the cystoscope. Ten days later the area was thoroughly fulgurated which was followed by considerable relief. Foci of infection were eradicated. Following this treatment daily bladder irrigations were done until the fulgurated area had healed. Three months later symptoms were recurring and the fulguration was repeated. This patient has been under observation intermittently since then and her greatest relief has fol-

lowed hydraulic over-distention of the bladder which was begun in June, 1926. The bladder capacity was gradually brought up to 540 cc and it has been necessary to repeat the distentions every six weeks to three months. In September, 1926, following an especially uncomfortable night she attempted suicide by asphyxiation. When found she was unconscious but was revived with appropriate treatment. At present she is doing very well. The bladder capacity one week ago was 480 cc and she was voiding four or five times at night.

Case No. 4980, a white woman, age 54. Twenty years before she began to have bladder trouble which had gradually progressed until there was almost a constant desire to micturate. Nycturia of 40 to 50 times and diurnal frequency of every 15 to 30 minutes was the rule. She had had several "nervous breakdowns" and was often mentally depressed.

On physical examination there was moderate tenderness in the bladder region. There was a small cystocele, a slight prolapsus of the uterus, and a small amount of muco-purulent discharge from the cervix. The tonsils were small and fibrous; no pus was expressed. No dental infection was found. Urinalysis disclosed a specific gravity of 1014, alkaline reaction, no albumen,

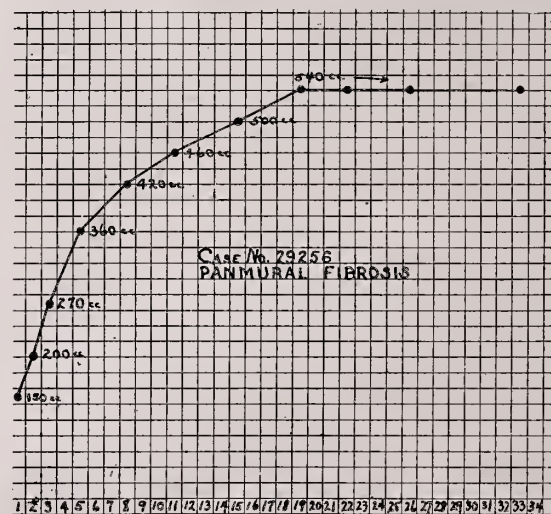


FIG. 2. Curve representing the increasing bladder capacity under daily hydraulic distention in a case of pan-mural fibrosis. The normal capacity was not reached until the nineteenth day. (Case No. 29256.)

no sugar and one pus cell per high power field. Cystoscopic examination revealed a bladder capacity of 45 cc. The ureteral specimens were normal. In the right upper wall extending onto the dome was a faintly reddened area which was very sensitive and bled at several points on over-distention. A diagnosis of pan-mural fibrosis was made. Hydraulic distention of the bladder was begun and the capacity very slowly brought up to 315 cc in the course of three months with marked relief of symptoms. Several months later she developed hallucinations and ideas of persecution and was placed in a sanatorium for observation and treatment of her mental condition, with the diagnosis of manic depressive insanity.

Case No. 1327, a white woman, age 35. Her chief complaint was frequency of urination which began one year before with periods of exacerbation of symptoms and there was a nycturia of six to eight times.

General physical examination was essentially negative except chronically diseased tonsils, which were subacutely inflamed, and slight enlargement of the cervical glands. No dental infection was demonstrated. Urinalysis disclosed a specific gravity of 1014, acid reaction, no albumen, no sugar, and negative microscopic findings. On cystoscopic examination the bladder capacity was 150 cc. Both kidneys were functioning normally and equally. The renal urine specimens were normal. In the left dome of the bladder was a small reddish area which was very sensitive. On over-distention, however, no bleeding was discernible nor did it fissure. The bladder was irrigated daily for two weeks and the examination repeated. The small hyperemic area persisted. Two injections of non-specific protein (milk) were made with considerable local and systemic reactions, following which the frequency became less and local treatment was discontinued. Ten months later the symptoms had recurred and a cystoscopic examination revealed the persistence of the suspicious area, which was thoroughly fulgurated. This treatment was followed by almost immediate relief which lasted three months when the symptoms gradually returned. Nine months later

the fulguration was repeated. At that time the area measured 2 cm in diameter. Again relief immediately followed and has continued to the present time.

Case No. 29256, a white woman, age 36, complained of attacks of frequency and dysuria which began ten years before. When the bladder was full sharp pain was experienced in the suprapubic region which disappeared on voiding. Nycturia of four to five times and diurnal frequency of every hour was experienced. The bladder trouble was especially aggravated during the course of three pregnancies.

On physical examination moderate tenderness was present in the bladder region. On pelvic examination the uterus was movable and slightly larger than normal. The tonsils were of moderate size and contained rare plugs. The left antrum was cloudy on transillumination and by roentgenography. A dental roentgenogram revealed periapical infection of five teeth. Urinalysis revealed specific gravity of 1014, acid reaction, no albumen, no sugar, and negative microscopic findings. Cystoscopic examination revealed a bladder capacity of 160 cc. The bladder and ureteral orifices appeared normal except for a small pinkish area 2 cm in diameter in the dome. On over-distention it was seen to bleed slightly and was extremely sensitive to touch. A diagnosis was made of pan-mural fibrosis. Eight days later, under daily hydraulic distention, the bladder capacity was 420 cc. The patient felt much relieved. Nineteen days following the examination the bladder capacity was 540 cc. She was able to sleep all night without having to void and considered herself well. This capacity has been

DIFFERENTIAL DIAGNOSIS

	SEX	CAPACITY	FREQUENCY		URINALYSIS	
			Day	Night	Pus cells	Blood cells
Pan-mural Fibrosis	Women Chiefly	Small — 150 cc or less	Marked	Marked	None	Few or None
Tuberculous Cystitis	Either	Small or normal	Marked	Marked	Numerous and tubercle bacilli	Numerous
Irritable Bladder (Neurosis)	Women Chiefly	Normal	Marked	Absent	None	None

CHART 1. Indicating the two conditions most easily confused with pan-mural fibrosis and the chief differential points.

maintained by weekly and finally monthly distentions, and no further trouble has been experienced. The infected teeth were removed in easy stages and the infected left antrum treated.

Case No. 26138, a white woman, age 39, complained of frequency and urgency of urination which began eight years before. The distress came on soon after voiding and sharp pains were felt through the region of the bladder. Voiding afforded brief complete relief. Nycturia of eight to ten times and diurnal frequency of every fifteen to twenty minutes was the rule. She had become very nervous and emotionally unstable.

General physical examination was essentially negative. A dental roentgenogram disclosed two teeth with periapical infection and one infected retained root. The tonsils were small and embedded. Urinalysis revealed specific gravity of 1016, alkaline, reaction, trace of albumen, no sugar, an occasional red blood cell and two pus cells per high power field. Cystoscopic examination revealed a bladder capacity of 180 cc. The ureteral specimens were negative and the bladder was otherwise normal except for a small reddish area one cm in diameter, to the left of the vertex. On overdistention this area showed a stellate fissure with considerable bleeding and was extremely sensitive. A diagnosis was made of pan-mural fibrosis and hydraulic distention of the bladder advised. She returned to her home in Kentucky where the treatment was very successfully carried out by her home physician, following which she was greatly improved for several months. However, the symptoms recurred and a recent letter stated she was still suffering from bladder trouble.

SUMMARY

1. Pan-mural fibrosis of the bladder is not an uncommon cause of marked urinary frequency and dysuria, especially in women.

2. Its diagnosis is not difficult. A negative urinalysis associated with the marked bladder symptoms should always arouse suspicion. The marked urinary frequency is always present at night as well as during

the day, which is important in differentiating it from certain functional or neurotic disturbances of the bladder.

3. Non-operative treatment is to be preferred. Fulguration and hydraulic distention of the bladder afford great relief which is usually only temporary, lasting from several months to a year. Lasting relief is unfortunately unattainable in many cases, regardless of the therapy employed, including surgical excision of the lesion. To build up the patient's resistance in order that the infection may be overcome may aid in permanently curing the disease.

4. Five cases are herewith reported which illustrate the features of this interesting condition and the treatment instituted. The removal of all foci of infection is important.

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DISCUSSION

DR. W. S. NASH, Knoxville: Mr. President and Gentlemen of the Society: It is rather unusual that an industrial surgeon is called upon to discuss a paper like this, but I received the Doctor's paper some days ago, and naturally I recall an incident when I was in the internist service in New York City, back in the late eighties. We had to deal with those things just the same then as we have to deal with them today and the best that I can say it was very thorough and very complete, but thank Almighty God that we have such conditions for Urologists. No one can be cured and every one can be improved.

Give me a patient with one hundred thousand dollars and an incurable disease, I am going to entertain that patient just as long as he lives, get a few, sooner or later, I will become a rich man myself. It is largely so with institutions in cities. I doubt whether Dr. Hunner has helped the thing very much or not. It takes on the ordinary pathological changes.

The Doctor hasn't brought us anything new. The very thing he covered up is the very thing I want to expose. I want to tell that young doctor that all he has to do is keep up with the patient who has got that disease and he won't have to work very hard the rest of his life.

Doing general surgery, I run across those things.

Sorry he didn't talk about those things. Those are experiences of people in the game a long time.

Now, his idea and method of giving hydraulic distention is absolutely correct, but in all the cases he recites it is a secondary condition and due to infection, the doctor injected some other animal and reproduced the idea. I take very little stock in that.

He also says there are other cocci, but, gentlemen, it doesn't get down to that. I just think that is all bunk. I am from "Missouri." Just naturally got to show me. I am not going to stand here and say, "The Doctor has a beautiful paper, well written, perfectly fine," but this reproduction of disease by the method spoken of, I take it as being

absolutely bunk. I expected him to tell me to the contrary, because I am too old to know otherwise.

The modern methods may reveal something. I hope they do. But after all is said, if the Doctor has got the patient in affluent circumstances, he certainly has got a graft for the rest of his life.

DR. T. D. MOORE: From Dr. Nash's discussion I would judge that the financial remuneration from the treatment of cases of pan-mural fibrosis is the outstanding feature in his estimation. In this connection I shall have to differ with him inasmuch as the non-operative treatment described is really very simple and several of these patients have been referred back to their family physicians who have carried out the treatment very efficiently.

PRACTICAL RESULTS OF THE HEALTH EXAMINATION*

STUCKEY F. MCINTOSH, M.D., Chattanooga

PERIODIC examination of well people is one of the more recent activities of organized medicine, although a similar practice has been followed by non-professional agencies for many years. Following the World War, there was a demand for some plan which would lower the death rate from preventable causes, and the health examination was the answer. The American Medical Association appointed a committee to investigate the problem and, based on the committee's findings, adopted a standard of procedure for the practitioner. However, the "rank and file" are not "sold on" the idea for the reason that no practical suggestions are made to assist in developing it. I am safe in saying that the average doctor will not make ten health examinations per year. In fact, very few doctors themselves are examined except in times of necessity.

The need for periodic examinations of so-called healthy people is obvious and the ultimate result of such a procedure requires no conjecture. If we are to believe our foremost biologists, death is not a natural process. All the experimental evidence at hand points out that living cells and tissues are

potentially immortal. Embryonic tissue has been kept alive for years. Woodruff found no natural death in 8,500 generations of paramecium, an equivalent to 250,000 years of human life. It does not take a flight of the imagination to realize that any death occurs as the result of deficiencies produced by environment. Removing the obstacles and reducing the dangers of environment to a minimum will result in longer life for the individual.

When we meet a friend on the street, his first remark will be "How are you?" "Fine! How are you?" is the reply. You then listen to a long list of exceptions. I am going to talk about the exceptions.

The country's economic loss annually from preventable diseases is over three billion dollars. Tuberculosis alone costs us over five hundred million. Forty-two million workers lose 350,000,000 days from illness and non-industrial accidents. Five hundred thousand people die each year. If one year could be added to each life we would conserve 1,369 years of productive labor. Twenty-five million people have defective vision alone. An equal number have defective teeth. More than a million people have tuberculosis, and an equal number have venereal diseases. Over six million

*Read before the Tennessee State Medical Association, Jackson, Tenn., April 11, 1929.

suffer from heart disease. This is quite an item to consider and our most optimistic investigators believe that we will see but slight improvement in the next generation. We will be fortunate to hold our own.

The results of health examinations can be discussed under several headings. I have selected four and will endeavor to point out a few of the most important results in each.

MILITARY

The nation had its first health examination in 1917. Approximately one million men between the ages of twenty-one and thirty-one were examined between June 10th and December 31st. Thirty-five per cent were rejected as unfit for military service. In 1918, another million were called with the same result. It was apparent that, with the rejection ratio so great and the demand for a large army so urgent, some changes in selection had to be made. An additional draft was called for ages eighteen to forty-five and the standards of physical fitness lowered. In this manner we were able to put an army in the field and hope for success.

The results of the draft and its high ratio of physically unfit have been referred to as a "horrible example"; but calling the situation by bad names does not excuse us from the truth. A nation whose vigorous manhood is thirty-five per cent deficient needs to take stock and devise some means by which our next generation will prove to be better soldiers. The place of any nation in the annals of time depends not on its wealth, its statesmen or its geographic position; but on the stamina of each individual citizen. Such a simple defect as astigmatism often disqualifies a man for military service. How he might be disqualified in civil life by the same defect, we have no way of finding out. It is safe to assume, however, that his ultimate success will be greatly affected by the impairment unless it is corrected early.

All commissioned officers in the service were required to take the health examination. It is popularly known as the "annual physical" and is done routinely. Its adoption became a necessity a few years ago

when it was found that many officers were leaving the service for physical disability prior to the age for retirement.

The "annual physical" is primarily a conservation measure. Only on rare occasions does it eliminate an officer and when it does, you can rest assured that every possible means of rehabilitation has been exhausted. Based on an experience of fifteen years, the army has the greatest longevity of any small group. Excluding deaths from accidental causes, the age of death is above seventy years.

No comment is necessary to bring to our attention the practical value of periodic physical examinations when applied to entrants in the service and the conservation of trained personnel after entry.

INDUSTRY

The Workmens' Compensation Laws will make health examinations mandatory in a few more years. Employers are now beginning to appreciate the necessity for physical fitness in labor. The payment of a few disability claims will go far toward making good health the basis for continued employment.

An analysis of ten thousand cases examined among industrial men aged thirty-four were found to be as follows:

Class I—No defects (perfect physical condition)—none.

Class II—Slight defects—10 per cent.

Class III—Slight defects requiring medical, surgical or dental treatment—41 per cent.

Class IV—Moderate defects requiring medical or surgical supervision—35 per cent.

Class V—Advanced physical impairments requiring systematic supervision—9 per cent.

Class VI—Serious physical impairment—5 per cent.

Minor defects included errors in hygiene, mild errors in diet, urinary abnormality and nose and throat changes. The moderate to serious defects included lung changes, endocrine disorders, digestive diseases, cardio-vascular disease, serious nose and throat changes, goiter with symptoms, syph-

ilis, organic nervous affections, and severe focal infection.

Examination of these people was made while at work and the method followed was similar to that used by the army. You will note that there were no perfect men found in ten thousand at age thirty-four. Seventy-six per cent were impaired physically. Some, it is true, were minor in character, but all serious impairments begin as very insignificant ailments. Fourteen per cent of the total were sick enough to require constant medical or surgical supervision. This is almost impossible to accept, because serious physical impairments are usually bed cases and many go to an early death years before their expected time.

In additional physical impairments, structural defects were present which included faulty vision, posture, flat feet, weak inguinal rings, overweight, underweight and hernia.

POPULATION

There is no information available on a population group except where surveys have been made for specific diseases. Several communities have been studied to determine the sickness ratio. A survey of this character does not develop the complete information brought out by a physical examination. The results of a community survey for illness in a New England town paralleled the results of an industrial group. In the report covering 4,473 cases examined, sickness was divided into minor ills and serious affections. Forty-three per cent were included under the heading of minor ills and eleven per cent were found with the serious affections. Minor ills were classified as colds, defective teeth, undiagnosed pulmonary diseases, enlarged tonsils and miscellaneous. Severe conditions included tuberculosis, cardio-vascular disease, tonsillitis, renal disease, cancer and miscellaneous. Apparently the ordinary physical impairments have a counterpart in community illness in about the same ratio.

INSURANCE

Health examinations are most valuable to the insurance companies and our most accurate information on the results is from

insurance sources. Insurance companies are slow to spend money on innovations for the reason that the various state laws make such expenditures hard to explain to the commissioner. One company pioneered in 1914, and authorized the Life Extension Institute to examine 6,000 policyholders. Including the cost of follow-ups and re-examinations, over \$42,000 was expended, but the saving in mortality amounted to over \$3,000,000. A reduction of 28 per cent in mortality was experienced in the examined group. This one experiment sold the idea to the business and now all of the more progressive companies have some scheme to promote longevity. Usually it is by means of the annual health examination.

The insurance companies do not directly profit by the experience because their contracts are incontestible after one year, but the ultimate return financially is far in excess of the cost. A \$10,000 death claim that can be deferred one year means one more premium, to say nothing of the interest saved on the face amount. Their plans vary from a free examination every five years to actual nursing service among the industrial policyholders. All of the plans are developed by physicians who are alive to the limitations imposed on any program which might encroach on the privileges of the profession. The impaired individual is sent to the doctor of his choice for observation and treatment.

The company with which I am associated conducts a longevity program consisting of three features, a laboratory service, the standard health examination and a membership in the Life Extension Institute for those insured for large amounts.

During the last two years over 600 were examined at the Home Office and over 7,000 specimens were forwarded to the laboratory. Our results with the health examination were not as discouraging as they were in the population and industrial groups, although over 10 per cent of the people examined were found to be impaired to a degree requiring medical or surgical supervision. This is rather high because the group examined represented a selected group who were examined at the time of acceptance. The

laboratory found 14 per cent to be abnormal. It is surprising to note that in many cases referred to the physician for treatment, a simple urinalysis is often the indicator for serious allied conditions.

All abnormalities reported are checked for confirmation and then the individual is advised to consult his physician for observation and treatment. Defects usually fall under three headings; those of minor importance, those that are producing symptoms and those which endanger life. In most of our cases, contact is lost when the individual is referred to the doctor but, as a matter of curiosity, a few have been followed up. I should like to report a case from each group.

CASE I. Man aged thirty-five, executive, came in for examination. Complained of headache, nervousness and visual disturbances. The latter he attributed to a change in glasses made by an optician. Physical examination showed no gross abnormality. The urine contained albumin which was confirmed by subsequent tests. He was advised to consult his family physician whose diagnosis was nephritis, chronic, fairly well advanced. The eye condition was checked by an oculist and, much to the surprise of everyone, one eye was found malignant. Removal of the eye and X-ray treatment proved effective but the nephritis persisted. He died four years later from advanced nephritis. We believe that our first examination put him in line for treatment weeks and perhaps months earlier than had he not been examined.

CASE II. Man aged forty-three, merchant, sent in a specimen for analysis. Along with the specimen he sent a note stating that he had lost eighteen pounds of weight in six months and had a poor appetite. He requested a "tonic," which was his reason for writing the note. However, as usual, we wrote him a letter suggesting the various factors which could produce such a condition and emphasizing the need for a thorough examination. He called on his doctor, was examined and immediately put to bed with a diagnosis of active tuberculosis. He made a good recovery in two years and on one of his visits to our city called and recited his story.

CASE III. Man aged fifty-one, sales manager, was first examined in 1924 and found with nephritis, hypertension, cardiac hypertrophy and mild arterio-sclerosis. The man lived in Texas and on his return home consulted his doctor who went into the case thoroughly. Focal infections of the mouth and throat were cleared up and a modified diet produced some improvement. In 1925, he was greatly improved, although the hypertrophy and a mild hypertension were still present. In 1926, he

was allowed to go back to his work on a full-time basis, as his hypertension had reached a stationary level and he was free of symptoms. Further observation in 1927, made us believe that we had accomplished the impossible, but early in 1928, he had influenza and late in his convalescence had a cerebral hemorrhage and died.

The practical value of the health examinations in each of these cases demonstrates conclusively what can be done and, while only one of them recovered, four years of added time to two of them was of untold value. The insurance company profited by having two big death claims deferred four years, which gave them more premiums, to say nothing of interest saved.

In conclusion, we should seriously consider any feature which will work to the ultimate good of our people. The heroes of medicine have written their names in the list of the immortals by waging a successful fight against contagious diseases. As a result of their labors a parent can rear his family, safe in the knowledge that his loved ones will not be swept away by one of the contagions so prevalent a few years ago. It is up to the practitioner of medicine to take up the fight against chronic diseases which are the leaders in causing our death loss. No better weapon has ever been forged than the health examination. The spirit of modern science demands that we deal with facts rather than opinions and we are beginning to find our feet on very firm ground.

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DISCUSSION

DR. MCINTOSH (closing): It is hard to understand the attitude of the general practitioner toward health examinations. The dental profession has overcome the phobia that was present in their ranks at the idea of calling people in for dental inspection. The modern dentist, keenly alive to the demands of his profession, calls his clients in twice a year. In this way, they are beginning to get some real results. Of course, a doctor feels that he cannot take that privilege.

THE SURGICAL CONTROL OF TONSIL AND ADENOID HEMORRHAGE*

FREDERICK E. HASTY, M.D., Nashville

NO surgical procedure is undertaken more often than the removal of tonsils and adenoids; and if any one point in the technique of the operation can be improved upon the undertaking would be worth while. The suggestions that I have to offer I do not consider perfect, but as I have worked out a rather definite technique I am pleased to offer it to you for whatever it may be worth.

I have devised a modification of the Mayo needle holder. This instrument is considerably longer, is lighter, the jaws are shorter, the box lock is smaller, and the length allows the operator to keep his hands above other instruments. It is made light so as not to obtund the finer sense of touch. The lock and jaws are made smaller so as to occupy the minimum amount of space. I have tried different types of needle holders and suture carriers, most of them being of a curved or angular type. At first thought this seems desirable, but in practice I find that the curved or angular holder is rather awkward to use in the limited space that is left in the tonsillar fossae after pillar retractor is placed in position and one or more hemostats are placed on bleeding vessels. It was for this reason that I conceived the idea of modifying the instrument that every surgeon is accustomed to using so that it might be satisfactorily used in the tonsillar fossae.

With this instrument I grasp a full curved No. 2 to No. 4 flat Lane cleft palate needle. The needle is grasped near the eye at the end of the holder so that a suture may be easily placed in a flat surface. The needle holder is held between the thumb and first two fingers in much the same manner that one would grasp a writing pen. The point of the needle is placed and by gently rotating the holder between the thumb and

fingers the needle is passed through the tissues with a delicate sense of touch. The point of the needle comes out and is grasped by a fine pointed hemostat, the needle holder is removed, the needle is drawn through with the hemostat. The holder is again applied with the needle as before and the needle is again passed through about $\frac{1}{8}$ to $\frac{1}{4}$ of an inch on the opposite side of the vessel that is to be ligated. By introducing the needle in this way one makes a figure "8" or puckering suture. Pressure is placed on the tissues on four sides of the bleeding point. The needle is always rotated in the long axis of the tonsillar fossae. I usually put the needle in below and come out above. Normally the large vessels are due to be some one-half inch or more external to the tonsillar capsule. There is occasionally considerable variation in these large vessels and more often in the large branches or tributaries. The margin of safety lies in favor of allowing the needle to go only deep enough to get a fairly good grasp in the tissues. It is well to pass the needle under the tissues for a distance of about one-quarter to one-half inch from entrance to exit. Aside from vessels at the base of the tonsillar fossae it is well to remember the possibility of including the lingual branch of the glossopharyngeal nerve. This would interfere with the function of the tongue. The possibility of this complication is more theoretical than practical. I have never seen it happen. The bleeding points in the dome of the tonsillar fossae may be ligated by rotating the needle in almost any direction.

I have had no complications following this technique. It serves my purpose under local or general anesthesia; and, in fact, in the few cases of post-operative hemorrhage I have had, this technique has served me in a most satisfactory way.

In dealing with post-operative hemorrhage, to place a hemostat on a bleeding ves-

*Chairman's Address read before the Ear, Eye, Nose and Throat Section of the Tennessee State Medical Association, Jackson, Tenn., April 8, 1929.

sel a few days after the operation causes considerable pain. I have found that by using a sharp needle I can place this ligature on a bleeding point with practically no discomfort up to the point of tying the knot, which of course, means pressure and does produce some pain. I avoid the use of hemostat as far as possible for two reasons: because of pain and because of the traumatism that is produced.

For suture material I use a plain No. 0 catgut. The double 0 is frequently not strong enough to stand the strain that is placed on these knots. In tying the knots I make a double turn, push the loop home with a finger or thumb and occasionally find it necessary to use a hemostat. At first I had some difficulty in tying the knot at the lower pole of the tonsil.

The advantages of this technique are first, that it is in keeping with the ordinary surgical proceedings; second, the instruments are practically the same as those used in general surgery; and third, to my mind, at least, it produces the minimum amount of traumatism to the tissues. I frequently place the ligatures without using a hemostat at all. This is especially advisable where there is a general oozing through an area of scar tissue. I pass the needle on either side of this area and tie the knot as outlined above, the hemorrhage is usually promptly and permanently controlled. The No. 0 catgut is absorbed in a few days and the ligature seems to produce no post-operative discomfort. I ligate without any hesitancy all vessels that I find to be bleeding, using a hemostat as little as possible.

ADENOID HEMORRHAGE

Retract the soft palate with a pillar retractor and the bleeding point will usually be found along the lower margin of the adenoid space. Grasp this with a broad, flat hemostat, pass the ligature through on one side of the hemostat, come back and go through on the opposite side of the hemostat, and tie in the same way as in the tonsillar fossae. This is surprisingly easy after one becomes accustomed to the technique. For about five years, I have satisfactorily used this method.

DISCUSSION

DR. RICHMOND MCKINNEY, Memphis: Every once in a while someone suggests a new method of controlling tonsillar hemorrhage. I can not see any necessity for a lot of unusual equipment, and my own experience in this respect doubtless has coincided with that of others. For a number of years I readily bought almost every new device for this purpose that was brought out, but for the past few years I have resorted to the simplest kinds of methods in controlling hemorrhage following tonsillectomy. If we have spurting vessel, usually this can be picked up with a hemostat and a loop of catgut or braided silk, preferably the latter, slipped down over the vessel and tightened. The knot used for this purpose is one spoken of as the Coakly knot, but in reality is simply a surgical knot, one end of the tie being cut down to the loop, this being caught with another hemostat and slipped down past the end of the hemostat holding the vessel and then tightened, the long portion of the tie being cut off. If it is a split vein or an ooze, and can not be controlled by this method of tying, it is a very easy matter to use a curved needle threaded with either catgut or braided silk, passed under the tissue held in the bite of the forceps, picked up on the other side, and the suture then tightened. This doesn't require any particular technical skill, and one would not be inconvenienced by not having some new type of instrument at hand.

I think Dr. Hasty has suggested a very good technic, and doubtless he finds it most satisfactory. I am not criticising this technic at all, but merely arguing that there is no necessity for any measures other than the simplest, which I have already described.

DR. EARL GOYER, Jackson: I would like to ask Dr. Hasty if he is able to apply this type forcep and control hemorrhage without the administration of an anesthetic. I mean those hemorrhages coming on from a few hours to three days after operation. I have found it impossible to handle the small children and many adults successfully without first giving an anesthetic.

I have been experimenting the past year on controlling these hemorrhages by some other method than ligation as I had such bad luck from ligation. So many times I tried it without an anesthetic and I know I can't ligate successfully without an anesthetic in lots of cases.

I certainly like the type instruments Dr. Hasty has shown us and have found them all he has recommended them to be.

If you have a bleeding vessel in a rather inaccessible location which you try to ligate without an anesthetic, it has been my experience that you will often make it worse and then have to resort to some other method.

DR. CULLOM, Nashville: I think the control of tonsillar hemorrhage is one of the most impor-

tant subjects we can discuss. I use very much the same technique that Dr. Hasty describes. Some men simply throw a loop around the vessel. I want my ligature anchored in the tissues by means of a needle. I then make a double tie just as Dr. Hasty does.

In answer to Dr. Goyer's question, I practically always put children to sleep to control hemorrhage. It is very unsatisfactory to locate and ligate a bleeding vessel in a frightened, struggling child. With the child asleep you can go about locating the bleeding point quietly and when you have located it you can tie it off and be sure you have it controlled. If the bleeding is at all alarming in an adult, it is much easier handled under a general anesthetic. In a case of tonsil hemorrhage, I try to control it as quickly as possible. I regard every case of tonsil bleeding as potentially dangerous. When a nurse calls me and says, "your patient is spitting up some blood, but I don't think it amounts to anything," I go to see the patient as soon as I can get there and I oftentimes find that by the time I have gotten there, the patient has vomited a quart

of blood and is getting into a dangerous situation. I think the safe plan is to regard all tonsil bleeding as serious and to take immediate steps to control it.

SECRETARY LAWWILL: I would like to add a word to the discussion. The method as outlined by Dr. Hasty is certainly scientific, better than all the different metal clamps and sponge forceps that can be held in place automatically and all the different coagulation injections. This is the only real way to control hemorrhages, but I suppose everybody is using some simple method to do it.

There is a little instrument devised and any of you can make one out of an old broken knife, taking the straight blade and breaking the ends off of it, just a straight metal probe and filing in the end of it a notch and using that instrument for running your tie down. It is a simple thing and some men will run it down on a finger nail, just take it this way, after the suture is anchored, tie your knot, just take this little probe with the notch in the end of it, and you can slide it down and tie it with the greatest ease in the world.

ETHICS OF INDUSTRIAL MEDICINE*

L. L. SHEDDAN, M.D., Knoxville

WHEN I began the practice of medicine some thirty-five years ago, Industrial Surgery or Medicine was confined largely to such corporations as were engaged in transportation as railroad and traction companies, and to mines located in isolated regions, where a physician had to be regularly employed by the companies to provide medical attention to their employees.

As time has passed the scope of industrial medicine has gradually widened until, now, it has become quite a factor in the general scheme of medicine.

With the advent of accident insurance, and workman's compensation laws, along with the rapid development of manufacturing enterprises employing large numbers of laborers the percentage of people coming in one way and another under the operation

of agencies employing medical men has become quite considerable.

Some of the larger manufacturing concerns have now their own private hospitals manned entirely by physicians employed upon a salary to look after the medical and surgical treatment of employees, so that the element of contract practice has been added to the field of industrial medicine and surgery.

Encouraged by the development of this form of medicine, fraternal organizations are employing physicians, and many welfare, and quasi welfare, organizations are contracting with physicians to treat certain classes of individuals.

While there is a legitimate field for industrial medicine and surgery, we feel that the whole proposition is rather having a tendency to lead toward socialization, at the expense of legitimate ethical medicine.

When your secretary invited me to read a paper upon the subject of ethics of indus-

*Read before the Railway Surgical Section of the Tennessee State Medical Association, Jackson, Tenn., April 9, 1929.

trial medicine and I began the consideration of the subject, I readily saw that contract practice could not be divorced from other forms of industrial practice.

The question of contract practice, or industrial practice, is becoming a very vital one in many sections of the country, and is causing great unrest and dissatisfaction among members of the profession in certain localities.

I will say that if all contract, or industrial physicians, in the country were S. R. Miller's, or Duncan Eve's, there would be very little complaint heard from the other men in the profession. However, unfortunately, all industrial physicians have not that high ideal of the practice of medicine which is entertained by these two gentlemen. I spoke of these two specially because of my long and intimate acquaintance with these men and their attitude in such matters.

If you will permit me, I will read you a ruling on contract practice rendered at the Washington meeting by Malcolm L. Harris, the present President of the A. M. A., who was Chairman of the Judicial Council for years. This opinion stands as the rulings or the highest authority upon ethical matters in the profession in the United States.

It will be remembered that a year ago the Council was requested to define what constituted contract practice and it did so in the following words:

"By the term 'contract practice,' as applied to medicine, is meant the carrying out of an agreement between a physician or group of physicians as principals or agents and a corporation, organization or individuals for a definite sum or for a fixed rate per capita."

This definition, we believe, will be found to cover every form of contract practice. It will be observed that in the definition no mention is made of the ethics of the practice for the reason that contract practice per se is not an ethical question, ethics being concerned with the form of the contract and the conditions under which it is made. That there are many conditions under which contract practice is not only legitimate and ethical, but in fact the only way in which competent medical service can be pro-

vided, becomes evident on analysis. For instance, where large numbers of workmen are employed remote from urban centers, as in some mining or logging camps, in such instances efficient medical service can be secured only by contracting with some competent physician to do the work. Certain industrial situations arise wherein large employers of labor are compelled by law to provide medical services for their employees under certain conditions, and this at times can be secured only by some form of contract. A community too small to offer sufficient inducements to a competent physician to locate therein may secure one by some form of contract or agreement as to compensation. It is perfectly evident, therefore, if we are to judge whether a contract is ethical or not, that we must know the form and terms of the contract as well as the particular circumstances under which it is made. As there is such a great variety of contracts, and as their form and the circumstances under which they are made differ so widely, it seems impossible, or at least inadvisable, to attempt to define what constitutes an ethical contract. Each case must be judged on its own merits after all the facts pertaining thereto are known. There are certain points, however, that may be formulated which, when present, one or more of them, definitely determine a contract to be unfair or unethical. These may be stated as follows:

1. When the compensation received is inadequate based on the usual fees paid for the same kind of service and class of people in the same community.

2. When the compensation is so low as to make it impossible for a competent service to be rendered.

3. When there is underbidding by physicians in order to secure the contract.

4. When a reasonable degree of free choice of physicians is denied those cared for in a community where other competent physicians are readily available.

5. When there is solicitation of patients directly or indirectly.

At this same Washington meeting President Jabez N. Jackson also reported to the House of Delegates a recommendation of

the Trustees of the A. M. A. to the Council on medical education and hospital that they make it mandatory upon all medical colleges to provide for a department to be known as the chair or department of medical ethics.

I wish to say that I am in hearty accord with this suggestion and hope to see such step taken in the very near future. There is no more important principle to be taught to medical students than that of the ethics of their profession. The welfare of the profession, I might say the very life of the medical profession, depends upon our keeping inviolate the great laws and principles which have governed the profession of medicine from the time of Hippocrates until the present time. Let the time come when those of our cult no longer regard these sacred principles. When every man is turned loose to be a free lance in the profession, then indeed will we see a total disintegration and destruction of honorable scientific medicine. We have heard from some that there is a tendency for the medical profession to drift into rank and sordid commercialism. While this tendency does prevail in certain quarters, and with certain individuals in the profession, I am sure, in fact, I know, it is not nearly so prevalent as certain lay writers for current literature would try to lead the world to believe. My observation and experience convinces me that the great body of physicians are today just as altruistic as ever before and that they will still hold tenaciously to the principles as laid down in our principles of ethics. Search all of your works on philosophy, sociology and statutory law, and you cannot find a more perfect set of principles to govern human conduct than the principles which have governed the medical profession from time immemorial. Next to our fidelity to our country and our God should come our fidelity to the principles of our profession. In fact, I feel that the principles of our code of ethics should be the very religion of every true physician. And if he keeps inviolate these principles he cannot but be a man, whether he be Jew or Gentile, Protestant or Catholic, Buddhist, Confucianist or a Mohammedan, white, black, red or yellow he will

be treading very nearly the path and observing the teaching of the man of Galilee and might well he be called a Christian. There is nothing mysterious, nothing hard to comprehend and nothing which does violence to one's manhood in our principles of ethics. Every man has implanted within him the very knowledge necessary to know whether he has ever read our Code of Ethics or not. It may be summed up in a very few words: first, do right; second, the Golden Rule embodies all that is found in our code, that "whatsoever ye would that men should do unto you do ye even so unto them"; third, be a man.

No member of the profession who systematically violates his professional principles can do so without doing violence to his own manhood and disgracing the profession he should strive to honor.

It has been asked, "What profiteth a man if he gain the whole world and lose his own soul?" but I say unto you what does it profit a man to reach out and accumulate great riches, political preferment and wide publicity for himself if he has to do it at the expense of his manhood and the respect and confidence of his fellow physicians? To my mind the one most worthwhile object in the life of a physician should be and is to have the complete confidence and respect of his profession. I am no pessimist. In fact, I am an optimist, I am not one who believes that the medical profession is degenerating.

The very system of medical education at the present time demanding as it does the higher education and better preparation of students within itself helps them to appreciate more and more the higher things of life and tends to a more honorable course of living. There is one thing I do deplore and that is the desire of every one in the profession to go to the towns and cities. This makes for unethical and mercenary tendencies. The very struggle for existence drives many otherwise honorable men into unethical and questionable practices.

When the secretary of this section asked me to write a paper for this meeting I informed him that I was not a railroad surgeon. In fact, that I was not an industrial surgeon of any kind, not being regularly

employed by any industrial corporation or insurance company, and that I felt that it might seem presumptuous on my part to appear as one of the contributors to your program. However, when he explained the situation to me, and asked me to write upon the subject of "The Ethics of Industrial Medicine," stating that he felt that a paper from an uninterested party would be entirely in order I consented to appear before you and to give you a paper on the subject suggested. This is my apology for appearing before the section on railroad surgery.

I feel that I am well enough known to you all, as well as to the whole profession of the state, for you to know that I usually say just what I think upon any subject I am called upon to discuss. So if I say things in this paper which do not meet with the approbation of your membership, remember that I am speaking as an outsider and from the standpoint of one who considers that the code, or principles of ethics, applies just the same to industrial surgeons as to men in private practice. I do not concede that there can be one set of principles of ethics to govern men who are doing industrial work and another governing men in private practice. One rule, one law must apply to all alike. I think you will all agree to this proposition and it is upon this broad viewpoint that I propose to base my statements.

The code of ethics lays down certain rules and regulations to govern our actions, and impresses certain obligations which every man assumes when he enters the profession. First, our obligations to the patient; second, our obligations to each other and to the profession as a whole, and third, our duties to the public.

We assume, and I am sure you all agree, that under any and all circumstances our duty is first to our patient. We often find it a very difficult principle to carry out, our relations with other physicians who may be interested and associated in the case, sometimes tempts us to shield our own interests and the interests of other physicians rather than safeguard the interests of the patient.

Diplomacy has to be used, and great tact exercised to keep from offending a profes-

sional confrere, yet we must keep ever before us the reason for our being a physician and that is our mission to suffering humanity. That is why we are engaged to minister to any case of illness, and what we are paid for and to do less is to practice fraud and deceit and to betray a sacred confidence.

This principle applies with equal force to the man in private as to the industrial physician and must not be forgotten.

When a railroad or any other industrial corporation employs or engages a physician to look after their injured employees they acknowledge the assumption of a responsibility towards their laborers, and acknowledge an obligation to pay for services rendered them. However loyal such corporations may be towards, and their personal interest in the physician they employ, the injured one must be the first to be considered. Such injured individual is not the property of the corporation, nor of the industrial surgeon nor private physician or of anyone else. He belongs alone to himself and unless a serf or a slave must remain a free agent.

The bone of contention between the industrial surgeon and those in general practice has been, and is, the question of the injured individual's right to choose his own surgeon.

Now, remember this, that the corporation is not especially interested in ethical questions arising between physicians, theirs is a financial interest. However, no industrial physician who is true to himself and true to his profession can or will recognize any obligation to such corporation to be greater than his obligation to his brother physician and to his profession. I will as briefly as I can state first the position of corporations and industrial physicians upon this question. Next the position taken by the physician in general practice.

First. The corporation's position is that as they are the parties who are responsible to the injured employee and have agreed to pay for such services that they have the inherent right to dictate who the surgeon shall be in any given case. This under ordinary circumstances, things being equal, is a perfectly logical position to take.

On the other hand, the physician in private practice holds that as he is the family physician or surgeon to the injured that he must occupy a place in that individual's confidence and respect. He has carried him and his family through serious illnesses and operated on them in past emergencies oftentimes without any compensation, or with very inadequate compensation, for the services rendered. We know that many employees with large families, and sometimes with small, find it very difficult to meet their obligations and the family attendant feels like he should be considered when an emergency arises and an opportunity is presented with an assurance of his being compensated for services rendered. Everything else being equal, I feel that this is a reasonable and equitable view to take in such cases.

I have heard the subject discussed pro and con and there is an attitude oftentimes assumed by certain industrial surgeons that they are of the elect and that the physician in private practice is grossly incompetent to handle such injuries. This is true in certain cases and the best interests of the patient and the corporation would undoubtedly be best conserved by being under the care of the industrial surgeon. However, the very opposite may pertain.

It must be remembered by, and it is known to you all that industrial surgeons are not always selected because of their especial fitness for such position. More frequently they are selected because of personal friendship or political influence either of the physician himself or friends.

While there are a great many very competent and able surgeons who are engaged in industrial surgery it has been my observation that a great many of them are far from being the best qualified men in the community.

Many of them are not surgeons at all, but close personal friends of some one in authority and some are as grossly incompetent as are any of those on the outside and the injured's interests as well as the corporation's interests would be much better conserved if more competent surgeons were in charge. Another question that I feel has

not been considered by corporations and industrial surgeons and that is one with a medico-legal aspect. Were the men in private work given a little more consideration and were they not made to feel that their patients had been taken out of their hands many lawsuits might be avoided and many damage suits might have quite a different termination.

When an antagonism is brought about and the injured denied his privilege of having his own surgeon and when his own surgeon is aware of the fact a damage suit is much more likely to be instituted and sustained.

There are three sections of the Code of Ethics to which I wish especially to call your attention. The first is Chapter II, Article III, Section 2 on Consultations.

The next is Chapter II, Article IV, Section 5, subject: Emergency Cases.

The other, Sec. 8, Chap. II, Art. IV, subject: Relinquishing patients to regular attendant. The first says: In every consultation the benefit to be derived by the patient is the first importance.

The second: Emergency Cases.

When a physician is called in an emergency and finds that he has been sent for because the family attendant is not at hand or when a physician is asked to see another's patient because of an aggravation of the disease, he should provide only for the patient's immediate needs and should withdraw from the case on the arrival of the family physician after he has reported the condition found and the treatment administered.

The next is: Relinquishing patients to regular physician. When a physician is called to the patient of another physician during the enforced absence of that physician the patient should be relinquished on the return of the latter.

Now, gentlemen, it does seem that the principles of ethics on this question is so plain that no interpretation is needed. This question is one not to be settled by corporations but between the physicians doing industrial surgery and the private physician.

I feel that industrial corporations have a right to look to their own interests and to

know that their injured are getting the proper treatment. I think it their duty to fulfill this obligation to those individuals. There is nothing illogical, unjust or unethical in this position. Corporations and physicians are both committed to this principle of looking to the interests of the injured.

It does seem to me that the logical, ethical and equitable course to pursue would be that when an industrial physician is called to treat an injured employee it should be his duty to apply such treatment as is needed at the time and then to ascertain the wishes of the injured party. Should such party desire the attendance of his family physician it becomes the industrial physician's duty to relinquish such patient to his regular attendant.

No man's loyalty to a corporation can ever be a just cause for unjust and unethical conduct toward a brother physician and a violation of the great principles of our profession.

Now, as I understand it, the corporation takes the position that if the injured employee insists upon his own physician treating him he may do so but that he must pay for such services. This to me, gentlemen, is a measure of compulsion absolutely unworthy of such corporation and unjust to the injured.

They have acknowledged their responsibilities in the case by offering treatment with an agreement to pay the bills, and such excuse can only be construed as a gesture to avoid responsibility.

Now, I grant you that circumstances may very materially alter the aspect of the case and that is the character and ability of the man engaged to treat such employee. The industrial surgeon in any community is or should be familiar with the standing and ability of the other physicians in his community. Should he know that the family physician is one not to be trusted and we all know there are such, and that the patient's interests as well as the corporation's are go-

ing to be endangered by his treatment, then I feel that he might and would be justified in insisting on retaining the case. On the other hand, when the industrial surgeon learns that the family attendant is one thoroughly qualified to treat such injury, when he knows that not only the patient's but the corporation's interests are properly conserved then no loyalty to a corporation and no selfish or mercenary motive on his part can ever justify his disregarding his ethical obligation to his professional brother. It is absolutely his duty to relinquish such case to the family attendant; to do less is to violate one of the most important principles of our ethics, and when a corporation learns that the injured employee is in competent hands and the interests of both parties are properly safeguarded it is their moral duty to pay such amount as would be paid the industrial surgeon and should the attending physician's charges be greater than this it becomes the duty of the injured employee to make good the balance.

The corporation being one of the interested parties and having acknowledged their obligation to furnish treatment and pay for the same should not only have the right but it should be their duty if there is any doubt of the ability of the attending physician to have their own surgeon investigate from time to time to see the progress of the treatment. Should the industrial surgeon conscientiously determine that the injured is not receiving proper care and treatment then his duty to the corporation and to the injured would demand a change.

I am taking the position that the average physician and surgeon in private practice is just as competent and just as honest as the industrial physician.

Second, that the principles of ethics applies with equal force to each class.

Third, that no physician can acknowledge a loyalty or obligation to any source greater than his loyalty and obligation to his profession.

THE JOURNAL

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Devoted to the Interests of the Medical Profession of Tennessee
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H. H. SHOULDERS, M.D., Editor and Secretary

JULY, 1929

EDITORIAL

MEDICAL ECONOMICS

It is becoming increasingly evident that the broad subject of medical economics is up and will not down until a satisfactory solution to the problem has been found.

A committee known as the "Committee on the Cost of Medical Care" has been created and financed. A program extending over a period of five years has been mapped out. Doubtless reports will be presented from time to time. There are a few practitioners of medicine on this committee. It is feared that the viewpoint of the practitioners of medicine will not be emphasized.

The present president-elect of the American Medical Association, Dr. Harris, has been giving a great deal of thought to this question and has advanced some suggestions which may be practical.

In some rural sections of the West plans are being tried out to which reference was made in a previous issue of the JOURNAL.

The frequency with which editorials and comments on this topic appear in other state journals indicates that the problem is widespread. It is apparent that this question is almost universal insofar as the United States is concerned.

It is increasingly evident that the profession of medicine is the group who must offer a solution to the problem. At least the practitioners' viewpoint must receive the proper consideration.

It is perfectly evident that if medicine does not offer a solution lay people will. There is ground for grave fear as to the

effect a plan evolved entirely by a layman would have on medical service in general, the future of medicine as a science, and on the practice of medicine as an art and a science.

This discussion is not undertaken with the idea of proposing a workable plan. It is rather with the idea of emphasizing to the profession the importance of the topic and the urgent necessity for the statesmen in medicine to get their heads together in consideration of it.

Dr. Harris, who is to be elevated to the presidency of the American Medical Association at the Portland meeting in this month, is losing no opportunity to bring this problem to the attention of the profession. It is sincerely hoped that he will furnish the leadership in the profession which will bring about a solution.

It does the profession no good to call attention to the fact that the budget of the moderately well-to-do family does not as a rule contain medical care as an expense to be met.

It does no good for us to reiterate the well known fact that a large per cent of the average family income is pledged before it is earned.

We criticize and criticism is warranted, but criticism will not solve the problem. We must recognize the problem and participate in its solution.

The situation seems to contain many inconsistencies. This office has received more requests this year for information as to new locations in which a well qualified practitioner of medicine could earn a livelihood that in any like period of time with which the writer is familiar.

It seems that doctors are finding it increasingly difficult to meet their financial obligations.

A solution must be found which will give to the public satisfactory service. At the same time the profession must receive satisfactory remuneration. This is the only means by which the profession will be kept alive and active. It will furnish the incentive to future progress.

THE COMMITTEE ON MEDICAL HISTORY

There are committees of the state association which are not required to be very active, but there is one committee of the state association which is very active. It is the Committee on Medical History.

If the state association at its next meeting is not presented with the best and most complete history of organized medicine in Tennessee it will not be due to lack of activity on the part of the members of the committee.

There are members on this committee who could not be paid for the time and effort that they are putting on this particular task. Members of the society are urgently requested to give this committee whatever co-operation they are called upon to give.

MARRIAGES

Miss Rheba Goolsbee of Chattanooga, and Dr. S. J. Sullivan of Cleveland, were married on June 17th.

CORRECTED ROLL OF COUNTY SOCIETIES

County	President	Secretary	Meeting Date
Anderson	H. F. Stiltner, Windrock	J. S. Hall, Clinton	1st Mon., 2 P.M.
Bedford	John W. Sutton, Petersburg	W. H. Avery, Shelbyville	3rd Thurs., 2 P.M., Dr. Ray's office.
Benton	See Carroll County.		
Blount	K. A. Bryant, Maryville	J. A. McCulloch, Maryville	Every Thurs., 8 P.M., First Natl. Bank Bldg.
Bradley	W. H. Sullivan, Cleveland	E. R. Ferguson, Cleveland	1st & 3rd Thurs., 7 P.M., Court House.
Campbell	J. W. Presley, Pioneer	F. A. McClintock, Newcomb	
Carroll		A. C. Elinor, McKenzie	Carroll-Weakley-Benton-Henry, 2d Tues., McKenzie.
Carter	J. L. Cottrell, Elizabethton	E. T. Pearson, Elizabethton	1st Mon., 7:30 P.M., First Natl. Bank Bldg.
Cheatham	W. S. Lockert, Ashland City	P. L. Pitt, Ashland City	
Chester		J. D. Anderson, Henderson	
Claiborne	See Hancock County.		
Clay	See Macon County.		
Cocke	A. L. Proffitt, Newport	J. E. Hampton, Newport	1st Tues.
Coffee	R. L. Dossett, Tullahoma	E. P. Vaughan, Manchester	1st Thurs.
Crockett	See Dyer County.		
Cumberland	E. W. Mitchell, Crossville	V. L. Lewis, Crossville	Cumberland-Overton-White, 3rd Thurs.
Davidson	J. O. Manier, Doctor's Bldg.	Sam P. Bailey, Doctor's Bldg.	Every Tues., 8 P.M., Doctor's Bldg.
Decatur		J. L. McMillan, Decaturville	
Dickson		R. P. Beasley, Dickson	
Dyer, Lake and Crockett	C. A. Turner, Dyersburg	E. H. Baird, Dyersburg	1st Wed., monthly.
Fayette		J. W. Morris, Somerville	Fayette-Hardeman, 1st Thurs.
Franklin	L. A. Templeton, Winchester	Jno. P. Grisard, Winchester	Last Fri., 7 P.M., Court House.
Gibson	W. C. McRee, Trenton	George E. Spangler, Humboldt	
Giles	A. M. Allen, Buford	G. D. Butler, Pulaski	
Greene	L. E. Coolidge, Greeneville	M. A. Blanton, Mosheim	2nd Tues., 7 P.M.
Hamilton	J. H. Revington, Volunteer Bldg.	S. F. McIntosh, Volunteer Bldg.	Each Thursday, 8 P.M., Manufacturers' Assn. Bldg.
Hamblen	Wm. E. Howell, Morristown	C. T. Carroll, Morristown	
Hancock, Claiborne, Union		I. N. Ford, New Tazewell	2nd Mon.
Hardeman	See Fayette County	J. Y. Alexander, Middleton	1st Tues. in Jan., April, July and October, Bolivar.
Hardin, Lawrence, Lewis, Perry, Wayne	J. T. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tues.
Hawkins		J. S. Lyons, Rogersville	
Haywood	J. M. Chambers, Brownsville	J. L. Edwards, Brownsville	Last Tues., 7 P.M.
Henderson		J. F. Goff, Lexington	
Henry	R. G. Fish, Paris	A. A. Oliver, Paris	(See Carroll County)
Hickman	C. V. Stephenson, Centreville	L. F. Prichard, Only	
Humphreys		W. W. Slayden, Waverly	
Jackson	J. D. Quarles, Whitleyville	L. R. Anderson, Gainesboro	1st Fri., Court House. (See Macon County.)
Jefferson		B. M. Tittsworth, Jefferson City	
Johnson	See Sullivan		
Knox	Ray DePue, West Church St.	Jesse C. Hill, 4323 Lyons View Pk.	Every Tues., 8 P.M., Medical Bldg.
Lake			(See Dyer County.)
Lauderdale		W. V. Sanford, Ripley	2nd Thurs.
Lawrence	See Hardin		Last Tues.
Lewis	See Hardin		Last Tues.
Lincoln	D. T. Hardin, Fayetteville	J. V. McRady, Fayetteville	
Loudon	W. H. Harrison, Loudon	J. G. Eblen, Lenoir City	1st Thurs., Loudon; 3rd Thurs., Lenoir City, 7 P.M.
Macon	M. H. Allen, Lafayette	P. East, Lafayette	1st Wednes., each quarter.
Madison	J. R. Thompson, Jackson	B. C. Arnold, Jackson	1st & 3rd Tues., 7:30 P.M., Y. M. C. A.
Marshall		J. A. Hardison, Lewisburg	4th Thurs.
Maury	Watt Yeiser, Columbia	W. K. Sheddian, Columbia	2nd Mon., 11 A.M., Elk Lodge Room.
Monroe	H. C. Shearer, Madisonville	H. M. Kelso, Madisonville	2nd Tues., Aug., Sweetwater.
Montgomery	C. N. Keatts, Clarksville	Bryce F. Runyon, Clarksville	3rd Thurs. night.
Morgan		J. F. Love, Lancing	
McMinn	J. R. Nankivell, Athens	C. O. Foree, Athens	2nd Thurs., 2 P.M., Dr. Nankivell's office.
McNairy	R. M. Hendrick, Selmer	H. C. Sanders, Selmer	3rd Thurs.
Obion	C. B. A. Turner, Union City	F. B. Kimzey, Union City	
Overton	See Cumberland County	A. B. Qualls, Livingston	3rd Fri.
Perry	See Hardin		Last Tues.
Polk	C. W. Strauss, Copperhill	F. O. Geisler, Isabella	
Putnam	H. H. Taylor, Cookeville	C. P. Martin, Cookeville	1st Thurs., 1:30 P.M.
Roane	R. E. Regester, Rockwood	T. H. Phillips, Rockwood	1st & 3rd Tues., 1 P.M., Red Cross Rooms.
Robertson	J. S. Freeman, Springfield	W. F. Fyke, Springfield	3rd Tues.
Rutherford		J. A. Scott, Murfreesboro	
Sevier		C. S. Kinzer, Johnson City	1st Mon., 7:30 P.M., Central Hotel
Sullivan			
Shelby	O. S. McCown, Bk. of Com. Bldg.	A. F. Cooper, Bk. of Com. Bldg.	1st and 3rd Tues., Medical Arts Bldg.
Smith	R. E. Key, Monoville	B. J. High, Elmwood	1st Fri.
Sumner	M. Woodson, Gallatin	Jno. R. Parker, Gallatin	
Unicoi	R. E. Stack, Erwin	J. R. Moody, Erwin	Every other Thurs.
Union	See Hancock County		
Warren		John S. Harris, McMinnville	1st Wed., 1:30 P.M.
Washington	C. W. Friberg, Johnson City	Edward T. Brading, Johnson City	2nd Thurs. at noon, Hotel John Sevier.
Wayne	See Hardin.		Last Tues.
Weakley	T. B. Wingo, Martin	J. E. Taylor, Dresden	3rd Wed., May, Aug. & Nov., at Martin. Also see Carroll.
White	J. E. Mathis, Bearden	S. E. Gaines, Sparta	2nd Thurs., Dr. Gaines' office. See Cumberland County
Williamson		K. S. Howlett, Franklin	2nd Tues.
Wilson	R. L. Witherington, Lebanon	J. R. Bone, Lebanon	1st Wed., 10:30.

MEDICAL SOCIETIES

Blount County.—The Blount County Medical Society held a special session at Montvale Springs on June 4th in honor of Dr. A. W. Morton, of San Francisco.

Dr. Morton is a former resident of Blount County, and now is located in San Francisco, where he has made an international reputation as a surgeon.

Dr. Morton owns and operates a one hundred and forty bed hospital, where he has perfected his ideas in the use of spinal anesthesia to such an extent that he is a recognized authority of this type of anesthesia all over the world.

At the meeting referred to Dr. K. A. Bryant, President of the Blount County Medical Society, acted as toastmaster, and requested Dr. A. M. Gamble to introduce Dr. Morton who spoke feelingly of his former home and friends in Blount County. He spoke at length of his methods in using spinal anesthesia, and gave it as his opinion that he believed it to be the ideal anesthetic, especially in the aged and in individuals suffering from certain organic conditions.

Following this talk a number of visitors were called on and responded, making the event one long to be remembered by all who were present.

A number of visitors were present, including the following: From Knoxville—Drs. A. G. Kern, V. C. Dail, L. H. Haun, J. J. Greer, J. T. Smith, H. M. Taylor, E. S. Clayton, W. R. Cross, H. D. Peters, R. G. Reeves, R. G. Waterhouse, L. C. Olin, Wm. T. DeSautelle, R. L. McReynolds, T. R. Barry, and L. L. Sheddan. From Maryville were the following: Drs. G. W. Burchfield, E. L. Ellis, C. F. Crowder, W. B. Lovin-good, J. A. McCulloch, K. A. Bryant, R. L. Hyder, A. M. Gamble, F. A. Zoller, J. E. Carson, D. R. Thomas, S. S. Kittrell, J. W. Norton, E. H. Lowe, C. C. Vinsant, B. E. DeLozier, J. W. Dennis and A. B. McTeer. Also among the visitors were ex-mayor B. A. Morton, of Knoxville; A. D. Huddleston, Assistant Supt. Aluminum Co. of America,

Rev. J. R. Johnson of Maryville, and Parks Morton of Austin, Texas.

Knox County.—This society is "going good" in spite of (or because of) the hot weather. Probably their weather is not so hot, but be that as it may, the society is H O T. Just look at these programs and you will want to attend regardless of how far you live from Knoxville.

June 11—"Strangulated Inguinal Hernia in Infants," by Dr. R. G. Waterhouse.

June 18—"Food, Facts and Fallacies," by Dr. C. J. Carmichael.

June 25—"Foods, Their Uses and Abuses," by Dr. R. B. Wood.

Pickett-Overton-Fentress Counties.—The May meeting was held at Jamestown, the members being the dinner guests of Dr. I. R. Storie. Those present were Drs. J. D. Capps, L. F. Zachry, W. Curtis Groce, I. L. Garrett, A. H. Crouch, and O. M. Sheldon.

The regular program was as follows:

"The Early Manifestation or Symptoms and Treatment of Pulmonary Tuberculosis," by Dr. I. L. Garrett. "Smallpox," by Dr. I. R. Storie.

Loudon-Monroe-Roane Counties.—The first joint meeting of these three societies was held at Lenoir City on June 20th. A good attendance from all the counties and visitors from Chattanooga and Knoxville were present. In addition to a dutch lunch with after-dinner speeches by Drs. Stem and Bibb of Chattanooga, Zemp and Sheddan of Knoxville, and John Roberts of Kingston, the following scientific subjects were considered:

"Pellagra," by Dr. J. W. Cameron, Sweetwater.

"Diagnosis and Management of Occipito Posterior," by Dr. J. G. Eblen, Lenoir City.

"Ileus," by Dr. T. H. Phillips, Rockwood.

"Diagnosis and Treatment of Cancer of the Cervix and Uteris by Surgery and Radio Active Agents," by Dr. Ed Newell, Chattanooga.

Dyer-Lake-Crockett Counties.—A meeting was held in Dyersburg on June 5th at the American Legion home building.

Speakers on the program were Drs. E. H. Baird, J. G. Price, C. L. Denton, O. F. Agee, B. G. Marr and P. A. Conyers, all of Dyersburg, and Dr. F. L. Roberts, of Trenton, a visitor to the society. Dr. Murich, of Montreal, Canada, and Dr. Crabtree, Gibson County health officer, also were visitors.

Five County Society.—Thirteen medicos of the membership of the Five County Society were in attendance at the meeting at Waynesboro, May 28th, five from Lawrence, one from Hardin, three from Wayne, one from Lewis, one from Perry and two from Nashville.

At this meeting an invitation was extended by DeLong Rice who is in charge of the Shiloh National Park for the doctors to hold their next meeting at Shiloh as his guests, the meeting being held the last Tuesday in June.

Benton-Carroll-Henry-Weakley Counties.—One June 11th the meeting was held as usual at the Lynn Hotel in McKenzie. Dr. R. A. Douglass, of Huntingdon, gave a paper on acute otitis media. Under the head of unusual cases, Dr. R. M. Little, of Martin, reported some of high blood pressure, and Dr. V. E. Massey, of Huntingdon, reported one of cancer.

Madison County.—The annual outing and barbecue of the Madison County Medical Society was staged on June 21st at Felsenthal Springs. The barbecue is an annual affair looked forward to with much interest and anticipation and this year the committee composed of Drs. Frank Hamilton, Jack Thompson and B. C. Arnold gave a picnic supper surpassing anything served before.

The outing started at 1 o'clock and through the courtesy of J. C. Felsenthal the

grounds of his summer home were used by the doctors for the occasion.

Trap shooting, games, contests and other diversions were planned for the afternoon. A good attendance enjoyed the outing.

Unicoi County.—The physicians of Unicoi County have recently organized a medical society. Officers elected were Drs. R. E. Stack, President; T. C. Hensley, Vice-President; J. R. Moody, Secretary-Treasurer.

Meetings for the society will be held every two weeks, on Thursday evenings, at the Y. M. C. A.

Monroe County.—The Monroe County Medical Society met in Madisonville June 11th, with Dr. H. C. Shearer presiding.

Interesting papers were read by Dr. W. J. Cameron, of Sweetwater, on "Pellagra," and Dr. M. D. Shearer, of Tellico Plains, on "Pyelitis." Each paper was freely discussed by all members present.

Those present were: Drs. T. M. Roberts, W. H. Arrants, W. J. Cameron, J. A. Hardin, P. E. Parker, of Sweetwater; Drs. M. D. Shearer and W. A. Rogers, of Tellico Plains; Drs. R. C. Kimbrough, H. M. Kelso, H. C. Shearer, of Madisonville.

NEWS NOTES AND COMMENT

Dr. J. O. Cummins, of Cookeville, sustained a double fracture of the hip when he fell from a cherry tree early in June.

Marshall county physicians are considering building a hospital in Lewisburg.

The Hoffman-LaRoche Company announce the removal to their new plant in Nutley, N. J.

Dr. and Mrs. Eugene B. Elder, of Knoxville, attended the American Hospital Association in Atlantic City, June 17th.

Dr. Elkin Rippey has been appointed resident physician of the Nashville General Hospital succeeding Dr. C. M. Miller, who is entering private practice in Nashville.

Dr. Paul Warner has opened his office in the Medical Arts Building, Nashville, and is limiting his practice to obstetrics.

Dr. C. B. A. Turner has recovered from his illness and has taken over the direction of the Obion County Health Unit.

The Knox County Medical Society is now meeting in their new hall in the Medical Building.

Dr. N. M. McCain, of Gainesboro, is improving after a serious illness.

The press reports that the University of Tennessee Medical Department awarded one hundred fifty-two diplomas on June 10.

Dr. Dexter L. Woods, formerly of Fort Worth, Texas, has opened his office in Murfreesboro.

Dr. Cummings Harris, of Memphis, has resigned from the Health Department and it is reported he will enter the practice of dermatology.

Dr. J. W. Shoun and Dr. E. L. Caudill, of Elizabethton, have been appointed as successors to the late Dr. J. O. Wood, physician for the American Bemberg and American Glanzstoff corporation plants.

Dr. Avery Leeper, son of Dr. and Mrs. J. T. Leeper, will soon return to Lenoir City and practice with his father.

Dr. W. J. Fitts, of Sumner County, a graduate of the University of Tennessee Medical Department, has been appointed Commissioner of Agriculture by Gov. H. H. Horton.

Dr. Olin West, of the American Medical Association, was a welcomed guest in Nashville last month.

Dr. W. F. Smith, of Decherd, was painfully hurt recently when he wrecked his car to prevent a collision with a little boy who darted into the highway in front of the doctor's car.

THE DAILY PRAYER OF A PHYSICIAN

The American Medical Association Journal of June 22nd devotes a page to the authorship of this famous prayer. In his scholarly article Dr. Emil Bogen, of Cincinnati, says "the Daily Prayer embodies the noblest philosophy and highest aspirations of the profession." Whether it was written by Maimonides in the 12th century, or by Marcus Herz of the 18th century, matters little to us. Whether it is an "ancient" or a "modern" document is of little importance compared with the lessons it contains. "Modern Science" (?) with all its progress has not excelled nor made obsolete the Truth and Beauty expressed by the unknown physician. Knowing that reading and re-reading the prayer will benefit our readers we quote it in full.

THE DAILY PRAYER OF A PHYSICIAN

All-kind! Thou hast formed the body of man in full wisdom. Ten thousand times ten thousand tools Thou hast united within him, and these are unceasingly active to maintain the envelope of the immortal soul, this beautiful entirety in harmony. Continually they are busy in complete order, agreement and accord. Whenever, however, this order is broken by the fragility of the matter and the untamedness of the passions, the powers come into conflict with one another and the body falls unto dust.

Then Thou sendest man Thy merciful messengers, the diseases, and they tell him that danger is approaching, and they urge him to forfend it.

Thine earth, Thy streams, Thy mountains Thou hast blessed with such things as may bring remedy, and may mollify the pains of men and cure their ills.

And Thou hast endowed man with wisdom so that he may relieve the body of ill, so that he may recognize order and disorder, so that he can discover the proportions of things and ascertain their functions and prepare against each evil that which may ameliorate or prevent it.

Me also Thine eternal providence hath chosen to watch over the life and health of Thy creatures. I am about to begin the exercise of my profession. Aid me, O All-kind One, in this great work, so that it may be of avail, for without Thine assistance nothing succeeds, not even the least.

May the love of fellow man and the love of my art ensoul me. May not thirst for gain nor craving for fame mingle in my service. For these are enemies of truth and charity, and they might mislead me and keep me from doing what I ought to do for the weal of my fellow men.

Preserve the strength of my body and of my soul, so that I might be unperturbably ready to help the rich and the poor, the good and the bad, the enemy and the friend. Let me see in the sick the man alone. Enlighten my understanding, that I may see what is before and encompass it, and that I may surmise what is absent and detect what is hidden. Let my mind not sink, lest I fail to recognize what is visible and overvalue it; lest, indeed, see what is not to be seen at all. For the limit in my art is lightly traced, and it comprises the health and life of men.

May my mind be always on the alert. While I stand at the bedside let not alien

things intervene to rob me of attentiveness, nor disturb me in my silent meditation, for great and holy are the searchings on which depend the weal and woe of Thy creatures.

Grant that the sick have confidence in me and in my art, and that they heed my advice and orderings. Banish from their side all quacks and the host of counseling kindred, and of overwise nurses, for these are a cruel people and pervert the best intentions and thwart those who are expert in the healing art and they lead men to death.

If wiser men wish to teach and correct me, may I follow them and be grateful; for the compass of our art is large and wide. But if zealous fools upbraid me, then let the love of my art keep me strong so that I may adhere to truth without regard to years and fame; for weakness and yielding would involve the pain and even the death of Thy creatures.

Let me be patient and calm when older men of my profession, proud in the number of their years, crowd me out, or taunt me or offer jeeringly to better me. But let this, too, be for my improvement, for they know things that are forgotten to me; still let not their conceit grieve me. They are old, and old age is not master of the passion. I, too, hope to grow old upon the earth, before Thee, O All-good.

Give me frugality beyond all, except in the great art. May never awaken in me the notion that I know enough, but give me strength and leisure and zeal to enlarge my knowledge and to attain ever to more. Our art is great, and the mind of man presses forward forever.

All-good! Thou hast chosen me, in Thy grace, to watch over the life and death of Thy creatures. I am about to go to my labor. Be with me in this great work, so that it may avail, for without Thy help nothing succeeds, not even the smallest.

BOOK REVIEWS

"PHYSICAL THERAPEUTIC TECHNIC"—Frank Butler Granger, A.B., M.D., Boston, Massachusetts. Published by W. B. Saunders Company, Philadelphia, Penn. Price, \$6.50.

This is a work of 400 pages giving in detail the author's methods and choice of apparatus arrived at after 20 odd years of work in teaching physiotherapy at Harvard and Tufts Medical Schools and at the Boston City Hospital.

It is always difficult to keep a mechanical device designed for treating the human body in its proper place. Prior to the last war the profession as a whole failed to realize the importance of physiotherapy and few of the clinics and hospitals had such a department. However, during the reconstruction work done following the war its many advantages were noted and published and immediately the manufacturers came forward with all types of apparatus and recommended them for the treatment of practically every possible human ill, and now entirely too often do we see an office elaborately equipped with such apparatus when we know its owner has little scientific understanding of their relative value. To see such an array of equipment without a trained physiotherapist smacks of quackery there, and serves as a bad influence in the profession.

Dr. Granger's work will help the physician desiring a knowledge of this particular field. The author starts with a practical review of electro physics and discusses types of electric current, heat and light. He gives excellent plates of this equipment and advises types preferred to best get the desired effect.

Conditions like arthritis, low back pain, acute injuries and other orthopaedic subjects are well classified and procedures of treatment sound.

The book contains a synopsis for teaching physiotherapy as well as drawings outlining space for hospital installation of a physiotherapy department. This is a practical book for a beginner or hospital interested in installing such a department.

R. R. B.

SURGICAL PATHOLOGY—Boyd. Second Edition. W. B. Saunders & Co., Publishers. Price, \$11.00.

This is a very excellent well-written book on pathology for the surgeon, and that can also be read with profit by the internist and the student. While most books on pathology has a tendency to be dry and hard reading, the clear cut, interesting style in which this book is written causes it to be just the reverse.

The subjects are all well handled in an up-to-date, modern way. It is a worthy addition to any medical man's library. J. L. D.

ABSTRACTS OF CURRENT LITERATURE

ANESTHESIA

By Hugh Barr, M.D.
Medical Arts Bldg., Nashville

Spinal Anaesthesia in Obstetrical and Gynecological Operations. Ranulph Hudston, M.D. Colorado Medicine, June, 1929.

The author discusses the history of spinal anaesthesia, the anatomy and physiology of the spine and cord. He also gives his technique in detail. In gynecology and obstetrics, while only low analgesia is needed, it requires a thorough knowledge of underlying principles to combat untoward symptoms.

According to the author there are no contraindications except local infection at site of injection and cerebellar neoplasms. Even cases with hypotension may be handled with safety if patient is put in the proper position.

The signa of impending danger in spinal anaesthesia may be divided into three groups. But in low anaesthesia they rarely ever occur and are transient and need very little treatment except Trendelenburg position and reassurance.

The immediate symptoms due to toxic action on the nerve centers such as nausea, vomiting, fainting, collapse, respiratory failure, drop in blood pressure, and slow pulse are combatted by Trendelenburg position, oxygen, artificial respiration, and adrenalin. Intermediate symptoms such as headache, meningitis, stiff neck are due to faulty technique. He advises quiet, forcing fluids, and lowering head. Late symptoms such as neuritis, palsies, persistent headache, nausea, and vomiting are also due to faulty technique and infection but are fortunately very rare occurrences.

CLINICAL PATHOLOGY

By R. H. Monger, M.D.
Medical Building, Knoxville

A Group of Higher Bacteria from the Genito-Urinary Tract. Sara A. Scudder, B.A. and David L. Beeding, M.D.—The Jour. Lab. & Clin. Med., June, 1929.

Inasmuch as the incidence of nongonorrheal infections of the genitourinary tract is greater than ordinarily believed, the authors studied some cases with reference to higher bacteria. They isolated three strains from the genitourinary tract, giving case reports with each strain. These strains were classified as Strain A, the case being from the cervix of a child; strains B and C from the prostatic secretions of patients who had clinical signs of chronic urethritis, but no positive clinical

or laboratory evidence of gonorrhea. These strains possessed certain characteristics of the Cladothrix and Streptothrix of the early bacteriologists, and one of the three strains is culturally and serologically distinct from the other two. Owing to the confusion in the classification, further study of many similar strains will be required before there can be a final identification of this group. The cultural and physiologic characteristics of three genito-urinary and three respiratory strains are compared with various types of pneumococci and streptococci, in order to record their characteristics. Their relationship to chronic inflammation of the genito-urinary tract may be secondary and incidental, although there is some evidence to indicate that they prolong the chronic process. Regardless of their pleomorphic character, they may be mistaken in smear and isolation culture for streptococci. They are differentiated morphologically, by a thin wall sheath. Bacteriologic and serologic characteristics indicate that the group is composed of diverse strains. The bacteriologic and serologic groupings do not correspond.

A serologic relationship was shown between a strain isolated from the respiratory tract and two from the genito-urinary tract. In a series of comparative studies it was found that fecal streptococci are differentiated from these organisms and from other types of streptococci by the fermentation of arabinose and mannite, rapidity of growth in dextrose potassium monohydrogen phosphate with peptone, rapidity of acid production in dextrose broth and a positive methyl-red test.

A Comparison of the Practical Value of the Wasserman and Kahn Tests in the Diagnosis of Syphilis in the Military Service. Chas. F. Craig. The Am. Jour. of Syphilis, April, 1929.

The information for this comparison was obtained by sending a questionnaire in the form of a circular letter to the various army hospitals.

1. The percentage of positive reactions obtained with the Kahn precipitin test in febrile conditions was slightly higher than with the Wasserman test.

2. Regarding the result of the Kahn test in other diseases than syphilis, the percentage of reactions was so much larger than that obtained in the Wasserman test that there is good reason to believe that many of the positive reactions were false ones, although syphilis could not be absolutely excluded.

3. The reports did not furnish sufficient data on the results of the test on the blood serum in cases of malaria to be of any value.

4. With but one exception the data show conclusively that a positive result is obtained earlier in the primary stage of syphilis with the Kahn test than with the Wasserman test, and that a

large number of primary infections give a positive reaction with the Kahn test.

5. The reports were practically unanimous in stating that the Kahn test was positive more often in old treated cases of syphilis and in latent infections than was the Wasserman test. Cases of known syphilis that gave a negative reaction with the Wasserman test after continuous treatment often gave a positive reaction with the Kahn test. The greater accuracy of the Kahn test in this class of cases is a very valuable feature of the test but is counterbalanced by the fact that so many cases giving neither a history of treatment, nor a history of syphilis and in whom there were no clinical evidences of the disease, also gave a positive reaction. The value of the use of this test as a control of treatment is, therefore, questionable if it is believed that a positive Kahn reaction indicates active syphilis.

6. The majority of the reports show that the Kahn reaction alone is too sensitive for use in the military service in that it gave a considerable percentage of positive reactions in cases having no clinical symptoms of syphilis and in whom there was no history of infection.

In view of the results of the comparative tests, it was recommended that the Wasserman test be retained as the standard method for the diagnosis of syphilis in the military service, and that wherever possible the Kahn test be used in conjunction with the Wasserman.

GASTRO-ENTEROLOGY AND PROCTOLOGY

By Edward Guy Campbell, M.D.
1109 First Natl. Bank Bldg., Memphis

Peptic Ulcer and Cancer of the Stomach. J. Shelton Harsley. Journal A. M. A., June 1, 1929.

Statistics by various authors are quoted as to the frequency of carcinomatus changes developing upon gastric ulcers. These varied from two per cent by Ewing to sixty per cent by MacCarthy.

The author reported a case that had had stomach trouble for fifteen years. X-ray examination revealed a marked deformity of the pylorus. There was little free hydrochloric acid present in the gastric juice. A partial gastrectomy was done, using a modification of Billroth I method. The patient made an uneventful recovery.

The pathological examination revealed an oblong superficial ulcer, the largest diameter measuring 2 cm. The extensive roentgenologic defect was obviously due to spasm. The histologic examination showed on most of the slides, the typical appearance of gastric ulcer, although two acini on one slide showed the structure of carcinoma.

The author thinks that it is improbable that the

cancerous spot has existed for fifteen years during the time of the gastric symptoms; that it is of recent origin and if more extensive studies of gastric ulcers are made, carcinomatus changes will be found to be present.

INTERNAL MEDICINE

By R. B. Wood, M.D.
Medical Building, Knoxville

The Pancreatic Triad. Our knowledge concerning the physiology of the pancreas is gradually being augmented by experimental study. A marked increase in interest being initiated during recent years through the discovery of insulin, has but only confirmed our lack of knowledge concerning all the functions of this organ. Reports of various investigators result in establishing the fact that loss of inhibition of pancreatic function not only markedly disturbs digestion but immediately affects the organism and results in varied and complex pathology.

W. N. Boldyreff, in American Journal Medical Science of June, 1929, describes "the Pancreatic Triad," following pancreatectomy or loss of pancreatic juice by fistula or by clamping the duct, which consists of (1) a rise in blood sugar, (2) a decrease in blood coagulability due to decrease in fibrin content and (3) the appearance of leukocytosis. The information as the author states should be of some assistance to the clinician in diagnosis and prognosis.

Cardiac pain according to Robt. Levy, M.D. (American Heart Jr., April, 1929), occurs in about 15 per cent of people coming to the consultant room and carries with it considerable distress which is not readily removed from the minds of the patients.

The earliest knowledge concerning the severe cardiac pain now known as Angina was given by Heberden and so called by him, though Jenner eight years later associated the symptoms with sclerosis of the coronaries, but did not publish his findings because of the presence of this condition in his friend and patient, John Hunter. Following this there have been contributions by many others, but the mechanism of heart pain is still unknown, though sixty-three hypotheses have been tabulated by Huchard. The most plausible have been advanced by (1) Albutt, who ascribed it to tension from the disease of the aorta, (2) by Mackenzie, due to exhaustion of the Myocardium, and (3) lastly by Allan Burns who ascribed it to anemia of the heart muscle.

Varieties of anginal pains is discussed by the writer and this is followed by a classification of various types, suggesting that the term "Angina Pectoris" be dropped and the term Cardiac pain be substituted followed by notation of structural

or functional changes with which the pain is associated.

One so frequently encounters Diabetes and Hypertension present in the same patient that the impression is formed that the one may induce the other, especially the likelihood of hypertension occurring in a diabetic patient. However, a perusal of Adam's article (Study of Blood Pressure of patients with Diabetes Mellitus—*Am. Jr. Med. Sc.*, 177: .95, 1929) based on the study of 1,001 diabetics seen at the Mayo Clinic, will reveal that hypertension is no more common in diabetes than in a like number of patients not suffering from this malady. In other words, only 16.2 per cent of males suffering of diabetes revealed a hypertension while 26.7 per cent of females with diabetes had an elevation above the normal. On the other hand 15.6 per cent of the males and 19 per cent of the females had systolic pressures below 110 mm. These data are averages for all ages. The final "weighted" averages of the group do not disclose any significant difference between the blood pressure of diabetic patients and that of normal persons. One must conclude that there is no clear evidence that diabetes by itself promotes hypertension.

Athletic Hearts. One still too frequently sees cases of heart disease that have been diagnosed "Athletic Hearts" and the patient allowed to continue with certain sports that should have been prohibited. Thanks to modern observations we no longer have such a disease entity. Work done in many parts of the country has proven conclusively that exercise, even strenuous though it be, does not of itself produce the enlarged heart, accompanied with or without a murmur.

The latest contribution and one that for all time should convince the most doubtful is given by Farrell, Langan and Gordon in an article (A Roentgen Ray Study of a Group of Long Distance Runners, *Am. J. M. Sc.*, 177; 324, 1929) the subjects of which were selected from the runners in a race from Los Angeles to New York who averaged 41 miles per day for 84 days. The study was made three days after the completion of the race. The findings in regard to the heart size were compared with the tables of Bardeen, i. e., the transverse diameters were computed for height and weight and an average obtained which was considered the normal diameter for the given individual.

In 13 runners the hearts appeared smaller than normal; in five they were within normal limits and in five instances they, according to the predicted diameters, showed an increase in size. According to the so-called cardio-thoracic ratio, only one heart was increased in size. This is no change noted from that found in individuals of similar ages without symptoms.

NEUROLOGY AND PSYCHIATRY

By H. J. Hayes, M.D.
899 Madison Ave., Memphis

Changes in the Interstitial Cells of the Brain with Morphine Intoxication. Harold G. Wolff, M.D., William P. Reed, A.B., and Stanley Cobb, M.D. Boston.

Wolff, Reed, and Cobb summarize as follows:

1. Several groups of dogs received injection of morphine sulphate varying in amount from 3 to almost 400 mg. per kilogram. They were intoxicated through single and repeated injections for periods varying from three hours to about two and one-half weeks. At the end of the special period for each group, the animals were killed, and histologic studies of the neurons and interstitial cells were made.

2. The oligodendroglia in all but the very mildly intoxicated animals showed degenerative swelling. Definite swelling of the oligodendroglia occurred in animals in which the microglia and astrocytes appeared normal.

3. The observed alterations in oligodendroglia are not specific in that they result from morphine sulphate only, but they are similar to those caused by other intoxicants.

4. The degree of degenerative swelling of the oligodendroglia is chiefly dependent on the total dosage and duration of administration of the drug.

5. If the degeneration is not too advanced, complete structural recovery may occur when the administration of the drug is discontinued.

6. The oligodendroglia may appear normal in animals mildly yet sufficiently intoxicated to present the physiologic effects of the drug. Hence, though the gap between function and structure has been narrowed through the better staining of these sensitive cells, there is still a great discrepancy between the first recordable change in function and the first visible change in structure of the central nervous system.

Traumatic Partial Hemisection of the Spinal Cord. Report of Two Cases Showing Motor and Sensory Changes. George A. Blakeslee, M.D., New York

Blakeslee summarizes as follows: The two patients were in good health until they received wounds in the left cervical region involving the spinal cord at about the second and third cervical dermatomes. In each case there was sudden flaccid hemiplegia on the side of the lesion and loss of pain and temperature sensibility on the opposite side. The flaccid paralysis soon became spastic, and in the course of a few weeks, there was almost complete recovery of muscle strength in the paralyzed limbs. Reflex signs and abnormal

associated movements still remained as evidence of the upper motor neuron paralysis.

On the side opposite to the lesion, in each case, there was a loss of pain and temperature sense from the second cervical dermatome downward. There were no other sensory changes, except that in one case the second, third and fourth cervical dermatomes on the side of the lesion revealed an impairment of tactile, pain and temperature sensibilities with, later, some atrophy of the muscles about the left shoulder girdle. Hyperpathic sensibility revealed exaggerated feeling tone in both cases on the right side, where there was a loss of pain and temperature sensation. This was usually referred toward the end of the nerves.

The sensory changes have shown a beginning recession: In case 1 there was a beginning return of pain and temperature to the fourth cervical dermatome. In case 2 there was a beginning return of pain and temperature sensation to the first thoracic dermatome. In one case there was a retention of urine for several days; in the other, an incontinence of urine for a few days. Both patients now have normal voluntary urinary control. At the present time both patients are performing their usual duties.

It is thought that in both cases there was a partial hemisection of the left side of the cervical cord. The site of the lesions is known with accuracy, and their nature limits the lesions to definite areas. The limitations are shown by the results of examinations made several months after the injuries were received. With the clinical signs of an upper motor neuron paralysis on the side of the lesion and loss of pain and temperature sensation from the second cervical dermatome downward on the side opposite the lesion, it is thought that the wounds are discreetly limited to the pyramidal and lateral spinothalamic tracts on the left side of the cord. At any level in the cord the secondary tracts for pain and temperature from the lower spinal dermatomes have crossed from the opposite side. Pyramidal pathways which crossed above continue downward on the same side of the cord.

It is thought that the functional loss in these cases is not due entirely to structural damage. It is certain that neither the cells nor the fibers of the spinal cord regenerate, and hence improvement cannot be ascribed to such regeneration. However, edema and other circulatory disturbances exist in the neighborhood of a traumatic lesion and may be the basis for many of the early symptoms which show considerable improvement later.

Shock, defined by Sherrington as the whole of that depression and suppression of nervous function which ensues forthwith on a mechanical injury of some part of the nervous system and is of temporary nature, may explain the temporary flaccid type of left hemiplegia in each of these cases.

The pyramidal tract is situated more medially than the lateral spinothalamic pathway, and therefore was probably less severely damaged than the latter, in a lesion which obviously involved the edge of the cord; this may, in part, account for the rather rapid recovery of function of the pyramidal tract.

Head stated that when there is an exaggerated effect or feeling tone on the side of loss of pain and temperature sensation, it is essential that tactile sense be intact. In these cases, tactile sense was preserved on the side of loss of pain and temperature, and aggravated effect or feeling tone was extreme; here, tactile sensibility must subserve the function of transmitting the sensations of discomfort as it did in Head's cases.

OBSTETRICS

By James R. Reinberger, M.D.
416 Medical Arts Bldg., Memphis

Is Surgical Intervention Justifiable in the Treatment of Metrophlebitis and Thrombophlebitis of the Pelvic Veins? John Osborne Polack. American Journal Gyn. & Obs., April, 1929.

Polack says that to answer this question will depend on our ability to interpret certain clinical and pathological data which has been observed during the course of infection, at operation and autopsy. And before radical operation can be considered the following must be explained:

1. Can Thrombophlebitis be recognized by its symptoms and physical signs with sufficient accuracy and at the same time warrant subjecting a woman to the added risk of operation?
2. Do the pathological processes and the biologic defenses which are revealed at operation, autopsy and in the laboratory justify intervention?
3. Or the indications for the operation so clean cut that needless surgery is not done?
4. And finally, has the mortality been actually reduced by operation?

He first discusses the normal placental separation followed by the physiological contraction and retraction of the uterus with a constriction of the placental site and thrombus formation in the large veins. As involution continues these vessels are gradually obliterated, or maybe new ones are formed within the old ones. If infection is introduced from the outside, there results an endometritis, which is always the forerunner of any extension to the veins of the uterine wall, thence to the pelvic veins. And he says that even if this be the case, that thrombi continue to form and coincidentally there is always an attack of the bacteria upon the intima which causes self-proliferation in the wall of the vein as well as in the outside tissue, which results in the constant formation of new thrombi, and this is certainly protective. As time goes on bacteria within the clot rapidly multiplies, liquify the clot and escape into the contiguous channels, only to be blocked by

now clot formation. This extension may be so great that the thrombus may extend through the uterine wall to the ovarian, uterine, hypogastric iliac, or even to the femoral veins. He has assured himself that all of this is protective in character and if let alone, nearly all of the vessels will eventually rid themselves of the thrombi, and that many others will become obliterated.

However, any manipulation will cause this barrier to be broken with a general spread of the infection into distant parts. But says he, if we could tell just where the process could be found, maybe we could remove same, for this is surely a good surgical principle. But unfortunately, we cannot, and he takes issue with Williams that the diagnosis of this condition is impossible from pelvic examination, to say nothing of those who advocate it as prognostic value. On the other hand, generally when the process has extended to common iliac, renal and vena cava with formation of multiple emboli which are usually carried to the liver, spleen, heart, joints and brain, it is apparent that the operation is fruitless.

He likewise says that if it were possible to do anything for these patients from an operative standpoint that the diagnosis would have to be made early for the patient to be a good operative risk. He bases his diagnosis on history of manipulation, red lochia, uterine colic and pyrexia. These uterine symptoms are soon followed by chills, fever and sweats with temperature remissions. Repeated chills means that thrombotic liquification has occurred, and that new bacteria have been again let into the circulation, as the disease goes on there is a rapid drop in HGB and RBC with a relative drop in white count.

He says that 60 per cent of all women who are treated conservatively get well. In a study of literature of 197 cases, that in 100 of these cases, that only one vein was involved 89 times, while in the remaining 97 the thrombosis was diffuse. Obviously it can be seen that in only 50 per cent of these cases could there have been any relief, to say nothing of the added danger in trying to find the limit of the thrombus. To the contrary, autopsy in 31 cases showed complete obliteration in 26, and certainly this was all that could be hoped for by ligation. Further in 182 selected cases subjected to operation there were 94 deaths, or 51.6 per cent mortality. In the corrected list, he found 111 cases considered favorable surgical risks with 34 deaths, or 33.9 per cent mortality. Contrast these with B. C. Hirst—whose 37 cases treated conservatively showed only 5 deaths, or 13 per cent mortality; 63 cases from his (Polack) clinic with 19 deaths. From the above discussion he is sure that he is justified with his conclusions.

The reviewer had his training on a large conservative service where they considered this diagnosis very difficult, to say nothing about operating on them. And for the last two years as an attending

physician he has had the privilege of examining all infections, and to his recollection only three frank cases have been diagnosed, one of which is present on the service and is about ready to be discharged.

OPHTHALMOLOGY

By Robert J. Warner, M.D.
Doctors' Building, Nashville

Conjunctival Hemorrhage, Difficult to Control in a Newborn. C. H. Sattler, Klin. M. f. Augenh., 1929, v. 82, Jan., pp. 84-85.

Sattler was called by a pediatrician to a newborn boy of three days on account of a continued conjunctival hemorrhage after normal birth. A small granulation at the upper lid border bled after being wiped off, and also a small place at the margin of the lower lid, exactly opposite the first. Treatment, including hypodermic injection of clauden (a protein preparation), was of no avail until on the fifth day an intramuscular injection of ten c. c. of the father's blood stopped the hemorrhage within a few minutes. There was no relapse. The examination of the blood and the coagulation time did not show hemophilia. For explanation of the cause Sattler assumes that the lids were still adherent at birth and were torn asunder in opening the eyes, leaving the bleeding spots exactly opposite one another.

Retinal Detachment Complicating Insulin Therapy. David Alperin, M.D., F.A.C.S., Brooklyn, N. Y. American Journal of Ophthalmology, June, 1929.

In three cases, one of which is described in detail, retinal detachment was thought to be due to administration of insulin for diabetes. The author's theory is that the retinal detachment is related to disturbances (in which the insulin and the diet play reciprocal parts) of the electrolytic and osmotic processes in the blood and the intraocular fluids. Thus, in hypoglycemia, a greater amount of exudate, diffusate, or transudate would be thrown into the subretinal space from the choroidal plexus of vessels.

OTOLOGY, LARYNGOLOGY, RHINOLOGY

By W. G. Kennon, M.D.
Doctors Building, Nashville

Toxic Otitis, by J. J. Hompes, M.D., Lincoln, Nebraska, Annals of Otology, Rhinology and Laryngology, March, 1929.

Most otologists have knowledge of the voluminous literature which exists relative to ear conditions which result from constitutional disorders. It appears, however, that many of us make little application of this knowledge in the routine handling of cases.

How many men, after making a diagnosis of eighth nerve deafness, will explain to the patient the necessity of a general physical examination? Far too many men give their entire attention to the removal of the primary foci of infection to be found in the field of their specialty, and even though infection cannot be demonstrated some operative interference is made either in the nose or throat with the hope that some benefit may result. In cases where positive infection exists and is removed beneficial results often do not follow, and the superficial doctor and the patient soon become discouraged and quit when just a little more thinking might lead to the discovery of a possibility for a satisfactory result. It is strange that most nose and throat operators will say that they can often do something for a rheumatic knee or a cardiac disease by removing an infected tonsil and thereby eliminating its infections and toxic elements from the blood stream and yet seem to think, when an infected tonsil is removed from the neighborhood of a diseased ear, that the resulting benefit is accomplished in an entirely different way.

Their action in the face of failure would incline one to believe that the ear suffered through continuity of tissue rather than through the blood stream as is the case with more distant parts. Such a conclusion seems justified in view of their apparent failure to consider the fact that the primary foci which they have removed might have affected some other organ or tissue and that this secondary focus may be causing the ear symptoms.

Most physicians believe that an eighth nerve neuritis can come from remote sources of infection or toxæmia such as Graves Disease or cholecystitis.

Wittmaack in 1904 said "No longer can any doubt exist as to the existence of an acoustic neuritis analogous to an optic neuritis or a toxic polyneuritis. The etiology on which acoustic neuritis is based is the same and as multiform as the etiology of the other two diseases." It is my belief that many of the otalgæ and acute and chronic catarrhal otitis media cases have the same multiform array of factors in their etiology as does acoustic neuritis. Almost any physician would acknowledge that ear symptoms are possible in any general organic disturbance, and he could honestly admit that he had made little use of his knowledge of this fact.

It is perfectly obvious that a careful and complete study is as necessary in otologic as in ophthalmologic, urologic or other cases of organic disease.

A careful history, general as well as special, will in most cases pick up the cases which require detailed study. Cases of incipient tuberculosis and thyroid disease have in many cases been diagnosed in their incipency who came in complaining only of ear symptoms. Patients are easily re-

ferred for physical examination if you have established a definite basis for your advice.

Illustrative case reports are appended in which both bone and air conduction were shown to be shortened and in which such conditions as chronic appendicitis, pyelitis, pulmonary tuberculosis, etc., were believed to be the causative factor and the removal of or appropriate treatment and cure of the primary disease caused a cessation of the ear symptoms.

PEDIATRICS

By John M. Lee, M.D.
Doctors Building, Nashville

Tracheobronchial Diphtheria, N. Turner Welford, M.D. Amer. Jour. Dis. Children. May, 1929.

The opinion prevails that this is a rare condition, and only slight mention of it is found in the literature. However, the author observed twenty-four cases in eighteen months in the Municipal Contagious Disease Hospital of Chicago. These patients were children from 1 to 10 years of age. Cough, indisposition and dyspnea were the symptoms given in the history, the cases being treated for a cold or bronchitis until the dyspnea developed. At this time they appeared toxic with a decided pallor, the temperature ranging from 102° to 105°F. There was cyanosis of the lips and finger-nails. Membrane covered the tonsils and pharynx in some cases while others showed no membrane in the throat. The voice was hoarse or aphonia was present. The dyspnea was severe, constant and grew progressively worse. There was marked retraction of the epigastric and intercostal regions. This is an important point in differentiating this condition from laryngeal diphtheria in which the retraction is in the supraclavicular, infraclavicular and suprasternal regions. Paroxysms of coughing may bring up pieces of membrane or a membranous cast of the tracheobronchial tree. Petechia were noted in the skin or mucous membrane of the nose and throat.

Auscultation of the chest gave signs similar to those produced by a foreign body in the bronchus. The breath sounds were suppressed over the entire chest, being almost absent over the bases of the lungs. Harsh emphysematous breathing is heard over the unaffected side when the condition is unilateral. Moist rales are heard over the whole chest, but sometimes the rales are suborepitant. The percussion note is usually hyperresonant. X-ray pictures show nothing diagnostic, but may show an atelectasis or collapse of the lung. Diagnosis is difficult in those cases showing no membrane in the throat. Tracheobronchial diphtheria is to be differentiated from laryngeal diphtheria, foreign body, asthma, bronchopneumonia, edema of the larynx and enlargement of the thymus.

Autopsies were performed in 22 of the 24 cases. In every case there was a membrane in the trachea, bronchi and bronchioles. In nine cases there was no membrane on the fauces. Asphyxia resulted in death of five cases due to obstruction of the trachea by membrane at or just below the bifurcation. Collapse of a whole lobe was found in the lungs of some of the cases. The other viscera showed the usual degenerative changes resulting from diphtheria.

On admission to hospital these patients were given 40,000 to 50,000 units of antitoxin. Intubation failed to relieve these cases. In some tracheotomy was performed with no benefit. If diagnosed early, bronchoscopy in the hands of a competent bronchoscopist with aspiration offers the only chance of combating this condition. Lynch reports recovery in 64 per cent of cases treated by bronchoscopy with suction for the mechanical removal of the obstructing membrane.

SURGERY — GENERAL AND ABDOMINAL

By John L. Dies, M.D.

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What Has Happened to the Unobstructed Bowel That Fails to Transport Fluids and Gas? Walter C. Alvarez and Kiyoshi Hosoi. *American Journal of Surgery*. Vol. VI, No. 5, New Series. Pp. 569 to 578.

The digestive tract is highly autonomous and the extrinsic nerves serve largely to prevent response to every stimulus. After vagotomy or splanchnicotomy peristalsis is often so active that the animal dies of inanition.

Normal aboral peristalsis appears to follow gradients of rhythmicity, irritability, latent period, metabolism, and muscular strength, running from duodenum to terminal ileum. These gradients might theoretically be reversed either by raising the irritability of the lower end of the gut or by depressing that of the upper end.

It may perhaps be stated as a law that irritation at any point in the bowel tends to slow the progress of material coming from the stomach toward it, and to hasten the progress of material moving caudad away from it. If the irritation is severe enough the result is an emptying of the digestive tract both ways from the lesion, with vomiting and diarrhea.

When in rabbits, enough turpentine was injected into the tissues about the ileocecal sphincter to produce considerable injury, the animals suffered from diarrhea and the colon was emptied. The ileum was emptied orad and food residues were held back in the duodenum. Peristaltic rushes were few. They were slowed and stopped in the lower bowel.

The whole bowel was unusually sensitive to faradic stimuli, and in most of the experiments

the normal gradient in irritability from duodenum to ileum was reversed. With the increased irritability of the bowel the latent periods were shortened, and the fact that this change was more marked in the lower ileum than in the duodenum caused the normal gradient in latent period to be flattened.

Segments of gut excised from the injured animals and placed in warm aerated Lock's solution behaved normally, showing that the failure of the bowel to pass onward its contents was not due to injury to the muscles.

Chemical injury to the ileocecal region in animals with vagi and splanchnics cut and much of the conducting system in the bowel degenerated still produced back pressure in the small bowel and marked slowing of rush waves. This suggests that the flattening of gradients had something to do with the failure of conduction.

The work suggests that in treating dynamic ileus attempts should be made first, to remove nervous inhibition, perhaps by splanchnic blocking or by spinal anaesthesia, and second, to restore the normal dynamic gradient by giving food, and by avoiding morphine and irritation to the bowel. The various methods of inducing peristalsis post-operatively are briefly reviewed.

Carcinoma of the Hand. Michael L. Mason. *Archives of Surgery*, May, 1929, Vol. 18, pp. 2107-2158.

Carcinoma of the hand is a condition of the advanced years, occurs more frequently in the male than in the female and (excepting roentgen carcinoma) more often on the right hand than on the left hand. The majority of carcinomas are located on the dorsum of the hand. It is convenient to divide these carcinomas into four large groups, depending on the etiologic factors present. In group A are those arising from irritation, trauma, scars, irradiation, etc. The author purposely made a separate group, A-1 of the irradiation carcinomas because of their large number and importance. In group B are those arising from some previous growth, B' congenital and B'' acquired. In group C are those appearing on the previously unchanged skin, while in group D are those cases in which data are too meager to allow classification. If one excludes roentgen and radium carcinomas, group A makes up two-fifths, and groups B, C and D each one-fifth of all reported cases of carcinoma of the hand. Irradiation would probably account for 30 per cent of these carcinomas. All but a very few of the carcinomas are squamous cell in type and therefore serious.

Diagnosis may be difficult even with microscopic section, and the clinical course and history are of value in reaching a decision. Many granulomatous lesions appear to be in reality carcinoma in which frozen section is negative for malignancy. The prognosis is in general favorable for the

cases in groups A and C, fair in group B". In the case of roentgen carcinoma the prognosis is good, providing all involved tissue, whether carcinomatous or not, is removed. Conservative measures are usually successful if promptly carried out, and radical surgical treatment is needed only in neglected cases, with the exception of cases in group B' in which radical surgical intervention is advisable from the start. In the case of carcinoma arising from roentgen dermatitis, in which multiple areas of keratosis are present, it is imperative that all keratotic spots are excised regardless of their extent.

UROLOGY

By Tom R. Barry, M.D., F.A.C.S.,
and F. K. Garvey, M.D.
Medical Building, Knoxville

Stricture of the Urethra Meatus in the Female.
Montague L. Boyd, M.D., J.A.M.A., Vol. 92,
June 29, 1929.

The writer disagrees with the older view that all urethral narrowings are inflammatory or traumatic in origin. Particularly the narrowing at the meatus in children and older females is found where there has never been any trauma or inflammation. When such condition exists he finds it often a factor in production of pyelitis and cystitis. A differential as to whether such a

meatal narrowing is congenital or acquired is made by noting whether there is a thin, protruding lower lip or fold. This is characteristic of the congenital type, while the inflammatory type will show thickening.

Symptoms are not noticeable by patient, except, probably an abnormally high directed stream.

Treatment is meatotomy and not dilatation with sounds.

A Simple Method for Removing Blood Clots from the Urinary Bladder, Davis, T.M., M.D., Greenville, S. C.

Davis has devised a method of removing from the bladder, large clots which are usually impossible to get through any urethral instrument because of their size, and tendency to clog the fenestra.

He uses the sheath of a 24 Brown-Berger cystoscope with the addition of a wire curett made of a shaft of 14 gauge steel wire with a loop which will pass easily through the sheath, made at right angle to it. With this he curetts the clots into the sheath where they are forced out by the efforts of the detrusor and abdominal muscles. Bladder irrigations with sterile water is also necessary for complete evacuation.

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THE IMPORTANCE OF ONSET SYMPTOMS IN DISEASE*

J. L. BIBB, M.D., Chattanooga.

EARLY diagnosis is absolutely necessary for successful treatment.

We medical men have been preaching it in T.B. and diphtheria, the surgeons have been preaching it in cancer of cervix and breast, appendicitis and obstruction. Why? Because in every case there exists a successful treatment, provided that treatment is given early enough. Therefore, for better service to our patients, our every effort should be directed to the study of early signs and symptoms.

Early changes in the physical examination or in laboratory investigations will lead to an early diagnosis, provided of course we can properly interpret our findings. I believe we fall down more here than anywhere in medicine today.

This subject is of increasing importance today because of widespread propaganda for so-called health examination, the routine physical examination of the supposedly healthy man. Here the task is even harder to correctly diagnose illnesses unsuspected by a man who thinks he is healthy.

We go to clinics or medical meetings, see hospital cases that have been well worked up with every known test—patients usually been sick a long time. It is interesting, instructive, and we come home stimulated to do better work. But what about the vast majority of patients we see acutely ill,

especially when we are called to their bedside at the onset of their disease. The question whether, as practitioners or internists, you and I will succeed or fail depends upon our ability to recognize onset symptoms and properly evaluate them. Unlike the hospital doctor or one connected with a big clinic, we haven't a big X-ray machine, well-equipped laboratory, at our elbow, and so we must depend upon ourselves. I wonder if we measure up as we should.

Cushing recently said that, if he had his way, he would send every Harvard graduate to the backwoods for one year, where he would have no access to X-ray, microscope and blood counter, and would be compelled to depend upon himself and his own knowledge and observation in order to make his diagnosis.

I wonder if we do not get too mechanical in our work, depending upon others to help us make our diagnosis. We must not forget that medicine is still an art and diagnosis is still a mental or intellectual rather than a mechanical process.

One reason why so little attention has been paid to early symptoms of disease is the fact that all textbooks give the classical symptoms of disease, describing the process after it is in full sway, but paying little attention to the onset symptoms. We must anticipate classical symptoms if we really wish to be successful.

Chevalier Jackson in a plea for early

*Read before the Tennessee State Medical Association, Jackson, April 11, 1929.

diagnosis of carcinoma and sarcoma of the oesophagus, says, "It would be better for suffering humanity if all mention of symptoms were omitted with the exception of those listed as early symptoms."

INTESTINAL OBSTRUCTION

This same thing could be applied to many diseases. What better illustration can be given of the importance of onset symptoms than intestinal obstruction? As Dr. Haggard has so well said, "The life of the patient depends on the intelligence and promptitude of the first physician who sees him, and not on the skill, method, or the experience of the surgeon who sees him later. Each hour of unrelieved obstruction diminishes greatly the chance of recovery."

My method of approach here is this: When called to a home and you get a history of vomiting, intermittent cramp-like pain in abdomen with persistent obstipation, ask someone to fix you a big enema; while waiting for the preparation of the enema, get your eyes down on a level with the patient's abdomen, if possible. Watch peristalsis, later listening with stethoscope. You get the peculiar thinking sound of the caught gasses, and, if you are unfortunate enough to see the case later, after enormous distention, you hear nothing because the abdomen is motionless. Pick up any good textbook and read the description of all the classical symptoms; fecal vomiting, great distention, etc. These are not signs and symptoms of obstruction, they are simply signs of impending death. Of course persistent obstipation is the important symptom.

ONSET OF APPENDICITIS AND PNEUMONIA

All of us have seen good men operate on a pneumonia patient, thinking he had appendicitis, thereby making an ill patient much sicker, and yet a proper interpretation of onset symptoms would help to prevent this mistake.

I have never seen appendicitis have as its onset symptom a chill. Usually at onset temperature is normal or elevated one degree, and respiration is normal, whereas, with pneumonia, we have chill, high temperature, fast respiration, and pain when the patient breathes or coughs.

On examination of a pneumonia patient with symptoms referable to abdomen, we notice this, that though the diaphragmatic pleurisy may reflexly cause rigidity of right rectus there will not be as much tenderness on pressure at McBurney's point as the symptoms would lead you to expect.

Of course the big factor besides the ordinary symptoms of pneumonia and very high leucocytes is the fact that at onset there is suppression of breath sounds at the right base, quite noticeable when you compare it with the other side.

CANCER OF STOMACH

Eusteman, of Mayo Clinic, shows that only 24 per cent of the stomach cancer cases are resectable and yet many of the patients give a history of previous dyspepsia over a period even as long as eleven years.

Again, textbooks give you a picture which only confuse. Presence of lactic acid, absence of hydrochloric acid, presence of opplerboas bacillus in gastric contents, fixation of navel, glands under clavicle, some free fluid in abdomen, presence of a mass in upper abdomen, emaciation, vomiting of food taken 18-36 hours before, etc., again are signs of impending disaster. But when we have a patient in the cancer age who has a loss of appetite, strength and endurance, pain immediately after eating, frequent nausea and some vomiting, with low HCl in stomach contents, a laparotomy to determine the condition should be contemplated before it is too late to remedy the trouble. X-ray in early stage usually tells us very little, if anything.

Twenty years ago the diagnosis of heart trouble was based mainly on gross physical signs. As someone has said, no attention was paid to complaint of patient as long as his heart was free from murmurs, his legs free from edema, his respiration free from labor, and his lips free from cymosis, he was considered in good shape. Now when a patient complains of breathlessness following accustomed effort, pain in the chest, palpitation, feeling of weakness or faintness, and says his heart "turns over" at times, he has, first of all, thorough search into his history, habits, and occupation. Fo-

cal infections are diligently sought, variation in rate and rhythm are studied, heart borders outlined, exercise test is given him to determine the presence or absence of unusual dyspnea, of pain over heart, or changes in color of lips and skin, and how long after exercise before the heart returns to its basic level. By this means we determine that the patient has an early heart lesion, and take proper measures to relieve the overworked, overburdened organ, before the process has advanced to the stage where nothing but temporary, remedial measures are used as a last resort, these remedies then only putting off the evil hour a few short weeks or months.

If after exercise, pulse is rapid for three or four minutes, if there is breathlessness, precordial pain with signs of discoloration of skin and lips—then the heart muscle is damaged and should have proper treatment and management. It would be fine to have electro-cardiographic reading on all our cases, but it is not necessary and any general practitioner can test the function of the heart by the method as outlined above.

Sir Thomas Lewis, who did more for the perfection of the electro-cardiograph than anyone else, did not use it in his big heart convalescent camp during the war. To determine whether a man should be sent back to full duty or remain in convalescent camp or be permanently discharged, he made just such examination and tests as we could make in our everyday work.

I believe that the accuracy of diagnosis of heart conditions will depend largely upon how much true data you can gather, both from the history and general examination, before you listen to the heart. The presence of decompensation is learned by physical examination of the body, not by auscultation of the heart.

ASTHMA, NOCTURNAL PAROXYSMAL DYSPNEA

Beware of making diagnosis of bronchial asthma in a patient who calls you suddenly at night with pronounced wheezing, shortness of breath, chest full of musical rales, both on inspiration and expiration. I say,

beware of making a diagnosis of bronchial asthma, if this patient is past middle life and has never had true asthma as a younger person.

More often this nocturnal paroxysmal dyspnea is a manifestation of aortitis or cardiac asthma. I have seen three such cases given good doses of adrenalin, one with a BP 210, one with BP 180, the last having a very large aortic aneurism. You can imagine the danger of pumping adrenalin to this man, yet the whole diagnosis lay in properly interpreting the onset symptoms, which were asthmatic breathing soon after falling asleep at night, with a history of breathlessness after exertion and oedema of feet.

A new patient's blood pressure should always be taken before adrenalin is given, no matter what his age. Likewise, I have seen a cardiac asthma case diagnosed as bronchial asthma, in spite of the fact that the woman was sixty years old and had never had asthma before. On questioning this case, she gave a definite history at onset of breathlessness on exertion, and oedema of the feet, etc.

RUPTURED DUODENAL ULCER

The writer has recently seen two cases of ruptured duodenal ulcer go undiagnosed because the importance of symptoms at onset was not realized by the first doctor seeing the patient. A history of the case are the facts in the case, and not always by any means what the patient tells you. In both these cases, it was impossible to get a history of indigestion two or three hours after meals, and yet, after operation, both patients gave a very definite ulcer history.

Like many of you, I see a good many cases in consultation, and when, as is generally the case, a patient has been given a hypodermic of morphine, which does not relieve the violent upper abdominal pain; when there is obliteration of liver dullness, rigidity and tenderness in epigastrium, with evidence of shock, we should expect to find a ruptured ulcer.

Later, one of the above cases said he drank a pint of milk every afternoon about four o'clock in order to relieve a burning, aching pain in stomach, and yet before the

operation, he denied ever having indigestion.

In differentiation of nephrosis from acute nephritis, again the signs at the onset are important.

In acute nephrosis there is massive oedema, albumin and casts, but no blood, in urine. The SG is high, and the blood chemistry and BP are normal. There is little disturbance of renal function except the retention of salts and water. There is low basal metabolic rate with hypothyroidism—the administration of thyroid gland being the treatment, together with ammonium chloride and novasurol or sarlygan for the oedema, whereas in acute nephritis we have all the above, with blood in the urine, often high BP and blood urea and creatinin high. You ask, Why is this important? Since Volhard has proven the efficacy of his hunger and thirst cure at the onset of acute nephritis, with restrictions of all liquids and foods for three days, you can see the importance of early diagnosis, and therefore knowing with which disease you are dealing. Volhard first gives fruit juices, then fruit juices with lactose and glucose, then in a few days adds rice, cream of wheat, cream soups, salt-free butter, potato, cauliflower, cocoa—a really low-protein, salt-free diet.

OSTEO-MYELITIS AND ACUTE RHEUMATIC FEVER

The differential diagnosis between osteomyelitis and acute rheumatic fever illustrates the importance of onset symptoms. If the osteomyelitis is just on the shaft side of the epiphyseal line and the joint is swollen, in the first twenty-four hours it is easy to be confused with rheumatism, and as far as the patient is concerned, the first day or two is the important time, for it is then that the real damage is done, and, unfortunately, an X-ray will not help.

In osteomyelitis the pain is constant, whereas in rheumatic fever, it is much worse when the joint is moved, and there is a history generally of acute infection, as tonsillitis, preceding the rheumatic fever, and often more than one joint is involved. In osteomyelitis the fever and leucocytes are higher. Of course, if osteomyelitis is

away from the joint, there is pitting on pressure, lesion is localized in one spot, and diagnosis is easier.

Time will not permit me to discuss in detail the many other conditions illustrating the practical importance of properly interpreting onset symptoms. In acute infectious diseases, think of the importance of this matter. For example, in severe scarlet fever, the early giving of serum saves so many complications and the early recognition of this disease, as well as other infectious diseases, saves other children in the family from infection.

In any infectious disease as measles, influenza, a sudden rise of temperature should suggest onset of middle ear trouble.

PULMONARY TUBERCULOSIS

If we go back carefully over the history of our tubercular patients, how often the onset symptoms are so different from the later ones. Often there is a history of so-called "stomach trouble," long before there is anything referable to the chest. Often there are periods of severe nervous depression. I do not think that in the beginning patients with tuberculosis will have all these symptoms, but often will have two or more of the following: stomach trouble, lack of appetite, chronically tired, especially children, period of extreme nervousness, loss of weight, weakness, and tendency to catch cold. Again, we must anticipate classical symptoms, if we really wish to be successful with patients with this disease.

In conclusion, we must change and rewrite the symptomatology of diseases as new and earlier symptoms are discovered, and who but the general practitioner can be responsible for their discovery? He it is who sees patients acutely ill at the onset of their trouble. What a fine chance for real research work! Cultivating more and more our own powers of observation and depending less on instruments of precision. To the specialists I would bespeak more consideration for the general man, but remember he is the "keystone of the medical practice—without his support the whole medical fabric would fall." Boost him! Help him get fees more commensurate with the valuable

service he renders. Make your clientele feel more and more his importance in the medical scheme. He is in a class by himself, having charge of the acutely ill, often with the issues of life and death at stake, depending upon his intelligence, skill and promptness in handling the sick, especially at the onset of their troubles.

DR. J. O. MANIER (Nashville): Mr. President, I think Dr. Bibb has brought to us a very timely message. It has been my experience that the greatest information to be derived from any patient is that which is acquired through a careful, painstaking and thorough history, and the proper use on the part of the examiner of his hands and his special senses. It is true that laboratory tests, X-ray pictures and other methods of precision give us much valuable information, but these should be used only as correlatives to history and physical examination. The average modern day text too often emphasizes the symptoms of a well-developed disease, rather than those of onset. This is quite strikingly illustrated in many of the articles on acute miliary tuberculosis. This disease in its incipency is often most difficult to recognize and bears in this stage a most striking resemblance to typhoid fever, yet almost invariably it will be noted that the symptoms that are emphasized and italicized are those that represent the final symptoms of the disease.

Dr. Bibb brought up a number of difficulties in differential diagnosis, and I shall not endeavor in my brief discussion to touch on but one or two of these. We have all had, I am sure, at times some difficulty in differentiating acute inflammatory conditions in the chest, from those of the abdomen. This is especially true in children where oftentimes a developing pneumonia with its referred abdominal pain and tenderness may suggest an acute appendicitis. Off hand, it would seem that no such difficulty should arise since a pneumonia with its high temperature, high leucocyte count and early chest signs should be quite easily recognized. On the other hand, one sees at times atypical appendicitis with unusually high levels of temperature and white count. I have personally been very much struck with, and helped by this fact, i.e.—while tenderness and rigidity over the appendix is quite commonly present in pneumonia in children, the tenderness present is usually more of a hyperaesthesia of the skin, rather than due to deep pressure on the abdomen wall.

In no condition is the recognition of onset symptoms of more importance than in the congestive type of heart failure. This is especially true in view of the fact that the earliest findings of impending myocardial failure are much more commonly subjective than objective. In the adult individual who begins to fatigue more easily than formerly, who finds that effort formerly carried on with ease now makes him short of breath, and that

he is a much longer time after such effort in regaining normal breathing, or the individual who says that to sleep comfortably he requires two or more pillows where formerly none were needed—all of these and many others should make one consider the possibility of beginning heart failure. It must be borne in mind, too, that oftentimes the earliest evidence of myocardial faltering may not refer one to the ordinary cardio-respiratory symptoms, but to some unrelated system as, for instance, the digestive system, as seen in the individual whose major complaint is epigastric soreness of a passively congested liver, or in the individual who presents as his outstanding subjective sensation, gastric and intestinal flatulence. The importance of recognizing the early evidences of heart failure cannot be too often emphasized, since at this time much can be done for the patient by cutting down his activity and so rearranging his mode of living that in many instances years can be added to his life. It is equally important that the other type of heart failure, i.e.—angina—be recognized in its incipency if much is to be done for the patient. I have been much impressed with the fact that angina, as well as other types of cardio-vascular disease, is definitely on the increase. The typical angina requires little ability for its recognition, but the atypical and irregular type, both as regards severity and location of pain, will often tax the judgment and intelligence of the most careful observer.

Attention cannot too often be called to the fact that the discomfort of angina may seem to the patient to be in some area other than behind the sternum. Abdominal radiation is such a common event in this disease that it is always worth while in an adult presenting upper abdominal discomfort as his outstanding symptom (and especially when this pain comes in relation to effort), to give some thought to angina before turning to surgery.

I have enjoyed Dr. Bibb's paper very much, and feel that we should all profit from it in view of the fact that it brings clearly before each and every one of us a duty we owe to every patient, i.e.—eliciting a careful, thorough history.

DR. E. M. HOLDER (Memphis): Dr. Bibb has given us a scientific panorama, a paper that is really worthy of more than passing notice.

He has given us, in a brief way, some of the problems that any practitioner or surgeon may meet at any time. A man's ideals live after him, what he does dies with him. Dr. Bibb's big idea is early diagnosis. We have all known that *desideratum* has obtained since the birth of medicine. If we could diagnose cancer earlier, we would have fewer deaths. All cancer cases would be operated on early, but unfortunately we can't always tell the nature of a new growth. This is true of many diseases.

Many times I have seen a case of acute pyloric spasm, having all of the symptoms of an acute gall bladder, and if surgically handled, what would

have been the result—a needless operation. A few doses of belladonna would have relieved the acute spasm. Our difficulty, all along, has been in diagnosing diseases. We all know that the art of diagnosis is the most difficult and important part of medicine.

Diagnosis is paramount in surgery, as well as in internal medicine. For example, a child has one of the diseases that Dr. Bibb speaks of in his splendid essay. The child cannot describe the symptoms that appear. The mother even is unable to tell you the symptoms. She says the child has been vomiting, has had great abdominal distress, but without definite localization anywhere, and that the child had a similar attack several months before. She can't tell you definitely what the symptoms are, you were not there to see, the symptoms appear and disappear rapidly in children, like the shadows of the sun dial. That child may have an acute appendicitis and it may not. It is many times not possible to tell. If the child has appendicitis there is but one thing to do—you know it, the mother knows it, even the neighbors know that the thing to do is to take out the appendix; but if the case is one of intestinal colic from food poisoning an operation would be a great mistake. I have had this experience on one or more occasions: I have removed an appendix in a young woman and the appendix found to be perfectly normal, but a leaking tube on that side was revealed at the time of the operation, with muscle spasm, nausea, vomiting, fever and leucocytosis; in fact, all the symptoms of an acute appendicitis, but not appendicitis at all. You wonder how you could have made such an error in diagnosis. The appendix is normal, you pick up tube and find what is wrong—an acute bilateral salpingitis.

All of these things confront both the general practitioner and the surgeon. The practice of medicine, I think, revolves around the science of diagnosis. I have always been in favor of having medical and surgical diagnosis taught, along with physical diagnosis, during the third and fourth years of the medical college course. Efficiency in

diagnosis is the keynote to success in medicine or surgery. If I were able to make a diagnosis every time I would feel that the practice of medicine would be mere child's play. The art of diagnosis is what keeps you interested in your profession. Want of this knowledge is costly, human lives are sacrificed thereby. Many times I have great difficulty making an early diagnosis and I know my fellow practitioners do also.

May I again compliment Dr. Bibb on his splendid contribution to medical literature?

DR. J. L. BIBB (closing): I am very grateful to these men for this discussion.

Dr. Manier brought out the question of early diagnosis of angina. This is often difficult when the pain is referred to abdomen, and the important question is, did the pain in abdomen come on after effort or not? Recently I had a case who knew he had heart trouble and had been told not to work, but, for economic reasons, he felt he must try to make a living. He lifted a big box of groceries into a delivery truck and suddenly had an acute abdominal pain followed by vomiting. The doctor who saw him a few minutes later thought he had a ruptured gastric ulcer and tried, fortunately without success, to rush him to hospital for operation. It was a typical case of angina with pain referred to abdomen coming on after effort.

Often mistakes are made in diagnosing heart conditions due to lack of ability to properly interpret our findings. The accuracy of our findings depend upon good history examination of body as a whole and then listening to heart. Often a person is unnecessarily condemned to a life of semi-invalidism just because some doctor has found a systolic murmur at the apex, even though there is no history of rheumatism, heart not enlarged and murmur not transmitted. McKenzie felt this so keenly that he said he thought the stethoscope had done more to obstruct the progress of study of heart disease than it had helped.

I thank you.

CERTAIN FACTORS CAUSING DELAYED OR NON-UNION OF FRACTURES*

HENRY M. COX, M.D., Nashville.

PATIENTS with fractures in which union of the fragments has not occurred are among the most pitiable and perplexing with which the doctor has to deal. The prophylactic treatment is more important than treatment after the condition exists. But in many of these cases the ordinary methods of reduction, fixation, and inspection have been carefully followed with this unfortunate result.

A study of the causes of delayed and non-union of fractures may be divided into

- (a) Local—and
- (b) Systemic.

Of the local causes probably the most frequent are—

1. Poor blood supply.
2. Faulty approximation of fragments, with or without interposition of some soft tissue.
3. Faulty fixation.
4. Local infection in compound fractures.

The general causes are thought to be—

1. Debility and asthenia associated with tuberculosis, syphilis, and anaemia.
2. New growths, such as myeloma, fibrocyst, sarcoma, and carcinoma.
3. Deficient blood composition as in rickets, or
4. Endocrine disorders.

No attempt is here made to discuss in full all of these conditions but only to emphasize a few of the local causes that may be of interest.

It may be accepted as axiomatic that repair of a fracture depends on the establishment of adequate channels of blood circulation to the injured area. Kolodny has shown by injected specimens that following a fracture there is an increase in the

diameter and in the tortuosity of all the arterial vessels in the section of the limb adjacent to the fracture. Coincident with the occurrence of a fracture there is damage to the normal blood supply. The vessels are cut by the fragments and the periosteal vessels are torn where the periosteum is separated from the cortex of the bone by avulsion. The same shearing force that cut the arteries also must cut the veins and lymphatics. Reposition of the fragments is practically never so accurately made as to bring the cut ends of the vessels in alignment; consequently the flow of blood and lymph will not be reestablished across the fracture in the vessels except by the development of new vessels. Following a fracture a new set of arterial vessels, transverse to the long axis of the (long) bone is developed. The vessels arise by a process of budding, starting at the periphery of the injured area, usually. An anastomotic arterial system is thus established and through its medium trabeculae are laid down. Repeated injury to this delicate anastomotic network, through motion of the fragments, makes necessary repair by the formation of new vessels. Thus retardation results in the interior of the callus while at the periphery granulation tissue is progressing to fibrous tissue. The latter contracts in due time and reduces the flow of blood to the interior of the callus. As a result, there is delayed or fibrous union of the fragments. With a proper blood clot and no interruption in its vascularization, following a fracture, granulation tissue replaces the clot and mineral salts, in solution in the blood serum, are carried to the site. Bone repair results successfully. When interruption of the continuity of the vessel system takes place, however, the normal bone repair will be interrupted or fail completely, and the characteristic fibrous union will occur. Because of a lack of proper

*Read before the Tennessee State Medical Association, Jackson, April 9, 1929.

support by the splint, or by too frequent and ungentle handling in dressing, the horizontal series of new vessels may be cut by the two fragments. Fractures should not be redressed unless the cause is imperative and in dressing should be handled firmly and gently so that there is no motion between the fragments.

The repair of a fracture is by a group of inter-related processes by no means well understood. These processes are:

1. The establishment of the circulation in preparation for the definite construction of a bone.

2. Dissolution, partial or complete, of the old bone and the laying down of lime salts to form new bone, which architecturally is not the same as the old; and

3. Rearrangement of the new bone to carry the particular stress to which that section of bone is subjected.

While these processes occur in the order given they overlap so that two or even all may be going on at the same time.

The circulation through the veins and the lymphatics is of equal importance to that in the arterial system, because through their medium the old structure is torn down or resorbed, thus permitting the growth of new vessels to form and establish anastomosis, which are essential to bone repair.

There can be no doubt concerning the relative incompressibility of muscle tissue. While muscle changes its shape in contracting and expanding it does not change its volume. In the case of a fracture of a long bone pressures are created against and in the muscle:

1. By displacement from hemorrhage.

2. By hemorrhage into its own interstitial structure, from the trauma which caused the fracture; and

3. By infiltration of inflammatory products.

The increase in volume is apparent as swelling, which is not in itself harmful or prejudicial to repair of a fracture. However, if such swelling is prevented by external appliances a series of maladjustments in pressure ensue which are deleteri-

ous not only to the circulation of the fracture but to the muscle itself. It has been shown how pressure in and about muscles is created. This pressure may be resisted by heavy layers of fascia or by tightly applied splints or casts. If resistance to expansion (swelling) occurs, its effect will be to diminish or occlude the lumen of the arterial blood vessels and thus prevent an adequate supply of blood from reaching the interior of the callus. It is thought that the mineral salts are carried by the arterial system to the site of the fracture in process of repair. If this belief is correct, interference with an adequate supply of blood must have a deleterious effect. Hence, the great importance of an effort to prevent considerable hemorrhage and inflammatory reaction even during the early days of a fracture is evident. Or, if this should occur, the immediate provision for the additional expansion by a readjustment of any circumferential dressing.

Much can be done at the first dressing to prevent excessive hemorrhage and inflammatory reaction. Usually at this time one is dealing with the break before the muscles have become spastic; there is only moderate swelling and replacement of the fragments may be possible. The part should be placed in the position of election. Thus a fracture of the elbow if seen shortly after the occurrence may be placed in acute flexion with little danger of excessive swelling subsequently. It is unnecessary for one to endeavor to make an exact diagnosis by manipulation. An X-ray examination should follow the first dressing and readjustment of any deformity shown may then be made.

The fracture appliance, of whatever type, should not permit any motion of the bone at the site of the fracture. The old rule to splint the proximal and distal joints is a good one. The belief that "a little motion is good for a fracture" is untrue, but the gentle contraction of muscles, as for instance the motion of the fingers in a forearm fracture, is beneficial because of the acceleration of the blood supply to the fracture and the elimination of waste products by the veins and lymphatics.

CONCLUSION

Whether or not there are any systemic causes for delayed union or non-union of fractures there would seem to be ample reason to believe that the consistent use of methods of treatment of fractures that require:

1. Good apposition;
2. Adequate provision for expansion of surrounding structures; and
3. Freedom from any shearing or hinge motion between the fragments, will be rewarded by a much lessened morbidity percentage.

Good apposition is, of course, routine and needs no word of defense. Ample provision for expansion is not always provided in the cast, splint, or other device used. Too much emphasis cannot be laid upon the importance of maintaining a careful watchfulness.

DISCUSSION

DR. WILLIS C. CAMPBELL, Memphis: I thoroughly agree with the doctor's statement, that un-united fractures are largely due to local causes. Today we have more un-united fractures than ever before. This is due, in the first place, to the fact that we have more fractures. Improved mechanical devices in this country, particularly the automobile, have caused a greater number of fractures, not only a greater number of fractures, but we also have fractures of a greater severity. One of the causes of non-union is inefficient treatment of fractures, and this might be due to inexperience in the use of the X-ray. In previous times, prior to the X-ray, the surgeon would be perfectly satisfied to obtain anatomical line.

Today, the mal-practitioners are presenting to the patient X-ray plates and films also that do not show perfect apposition, causing him sometimes to try to reduce the fracture by making several forcible attempts. Then, after failure, possibly a surgeon is called and does an open operation. Whenever an incision is made in the fracture, union is delayed. Open operations are essential and necessary in a certain class of cases and certain particular fractures, but certainly not as a routine method. In a large percentage of the un-united fractures that I have treated, they give such a history as I have described to you. Frequently attempts at reductions are followed by open operations. Insult is often added by infection, because in this type of surgery more careful technique is necessary and should infection occur, osteomyelitis with disastrous results is quite common.

If we succeed in this class of case when non-union has occurred successful union can be accomplished only by considering three factors: First, of course, reduction; second, complete internal fixation; and third, the osteogenesis, or bone production. Unless this is taken into operation, failure is quite common.

We do have constitutional elements that prevent union, but they are so rare, I think, that we can state that those in whom there has been no previous infection, union will occur in over ninety-five per cent of cases by efficient operation. That fact alone is quite convincing, and as Dr. Cox very splendidly stated to you, non-union and un-united fractures are undoubtedly caused by local interference with the physiological efforts of nature to produce union.

DR. DUNBAR NEWELL, Chattanooga: I want to add emphasis to what Dr. Cox has said. In our personal experience in the last seven years of treating over three thousand fractures, with only one non-union, we have paid no attention whatever to the systemic condition of the patient. We have never thought that the systemic condition had anything to do with the union or non-union of the fracture. We have always considered that the condition was entirely a local one.

We have treated each fracture as it came in as an emergency case. If it was possible, the patient was operated on at once, and as Dr. Cox said in his paper, if the operation is done at once, when the patient is not in too much shock, the muscles are so much relaxed, very little trauma, and do not have that excessive bleeding that you always have when you have to do repeated manipulation to get a reduction.

I think the secret of our success in having so many fractures with only one non-union is due to the fact that we reduce them at once on the reading of the X-ray and not by manipulation.

We never manipulate a fracture until we have taken an X-ray. Then, when the fracture is set another X-ray is taken but no repeated manipulation in an attempt to diagnose a fracture in over three thousand fracture cases. We feel that the bone should grow back together as accurate as possible. We feel the putting of the bones together in as near perfect apposition as possible gets the best results; and, secondly, we feel that keeping the bones together is a very important procedure. We think if the bones had been properly put together, proper bandages, proper allowance for expansion and injury to the soft parts and kept in position without manipulation, without taking down to inspect, or doing anything to them, insures a union in our experience of only one non-union in three thousand cases.

I was talking to Dr. Pütti, of Italy, last summer, in Chattanooga, and he said the only two things involved in the treatment of fractures were

putting them together and keeping them together, and that sizes up the situation. Put them together and keep them together. This old idea of taking the fracture down after one or two weeks to inspect it, I think, is malicious and very harmful. I don't see any necessity for it, if properly bandaged the first time, any necessity to inspect, unless for some real reason.

When we have to do an open operation, as is sometimes necessary and increasingly more necessary because of the X-ray plates exhibited to the jury. We don't always do the open operation because we think it absolutely necessary, but we do

it some times for our personal protection. It is difficult for scientific men making statements of this kind, but when you do an open operation, for personal protection or for necessity, I have always contended the most important consideration is not interfering with the blood supply to that broken bone. Do as little trauma as possible, do not interfere with the blood vessels coming from the soft tissue to the bone, and doing just as little manipulation of the bone as possible, do not disturb the periosteum, and closing the wound completely without drainage, and we believe that you will get very few non-unions in these cases.

DIAGNOSIS AND HOME MANAGEMENT OF PULMONARY TUBERCULOSIS*

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INTRODUCTION

THAT the early diagnosis and treatment of pulmonary tuberculosis are essential factors in assuring a cure or arrestment in a minimum period of time, is a generally conceded fact.

If persons having tuberculosis would consult a physician during the incipient stage and if every physician would recognize the disease in that stage and place his patients under immediate and adequate treatment, the number of cures would be materially increased and the mortality and morbidity rates of this dreaded malady greatly reduced.

Unfortunately, the above conditions do not obtain. Many persons present themselves to a physician for the first time when the disease is moderately or far advanced. On the other hand, pulmonary tuberculosis is sometimes overlooked by a general practitioner in making an examination due to the fact that the symptoms complained of are common to other constitutional disturbances.

It does not require the chest specialist or any great armamentaria to diagnose a great many cases of tuberculosis. The general practitioner is capable of diagnosing the

average case of tuberculosis, so also is he capable of treating many. It cannot be denied that in certain cases and for certain types of patients, the service of the specialist and the advantages of the hospital are required.

These considerations are the basis of the control program of the Tennessee Department of Public Health developed under the guidance of the Tuberculosis Hospital Commission. Before considering the subject of this paper, "Diagnosis and Home Management of Tuberculosis," I wish to digress a few moments to familiarize you with the Tennessee program. The main features of it are:

- (1) Organization and conducting of free diagnostic chest clinics in cooperation with the practicing physicians. Such clinics are for the purpose of locating and placing under the care of physicians, persons having tuberculosis.

- (2) The reporting of the clinical findings to the family physician, and to him alone.

- (3) The instituting of a nursing follow-up service to assist the physician in carrying out his instructions in the home.

- (4) The rendering of consultant service to practicing physicians in private cases where such service is requested.

*Read before the Tennessee State Medical Association, Jackson, April 11, 1929.

(5) The approval of the program by the various county medical societies. Clinics are conducted in a county only upon invitation from the medical society of that county.

There are other aspects of the program, which are:

(1) The study of existing hospital facilities, general and specialized, and a determination of tuberculosis hospital bed requirement.

(2) A comprehensive and complete study of the epidemiology of tuberculosis in the state.

(3) Cooperation with the State Departments of Agriculture and Labor in the development of accredited areas of milk supply and in the elimination of industrial hazards.

PROCEDURE IN THE EXAMINATION OF A PATIENT AND THE CRITERIA UPON WHICH A DIAGNOSIS IS MADE

Taking of History.

When a person attends a clinic for examination, the first step is to obtain a complete history. This includes the family history, personal history, history of present illness and symptoms complained of at the time of the examination.

The manner in which the history is obtained is important. Information given voluntarily by the patient is most likely to be of greater value than that elicited by a set of routine questions. Many neurotic individuals believing themselves to be victims of tuberculosis will answer in the affirmative to every form question. Voluntary information, however, must be supplemented by direct questioning.

Consideration of the History.

The history is an invaluable aid to the work of the clinician in conducting an examination. To quote Dr. F. M. Pottinger:* "A history taken with pains to bring out the essential facts, when carefully analyzed will indicate the probable presence or absence of tuberculous disease in a very large percentage of cases."

The history of exposure to the disease is highly important. The theory of heredity now is probably entirely disregarded by authorities, and the fact that children of tuberculous parents so often have the disease is usually attributed to their intimate and prolonged contact with these parents in the home. The history of exposure, particularly during childhood and early adult life, demands careful attention on the part of the clinician.

Consideration of Symptoms.

The symptoms of any tuberculous patient can be divided into two groups: first, the local symptoms which include cough, expectoration, hemoptysis, and pleurisy; second, general symptoms which include malaise, digestive disturbances, night sweats, nervousness, pyrexia, loss of weight, and increased pulse rate. The first group of symptoms attract attention to the lungs and are the most important to consider in the diagnosis of the disease. The second group are not peculiar to tuberculosis, but may occur in many other diseases. Even when considering the local symptoms, it must be borne in mind that they can occur in any form of pulmonary disease. Two of such symptoms are, however, of supreme importance in diagnosing pulmonary tuberculosis. They are, first, pleurisy with effusion, and second, hemoptysis of a drachm or more. Quoting Dr. Lawrason Brown,* "If no other causal factors are present, the occurrence of either of these two symptoms demands a diagnosis of suspected pulmonary tuberculosis until another diagnosis is made."

Physical Examination.

The next step after the history, including the symptoms, have been carefully considered, is the physical examination.

A carefully taken history, as valuable as it is to the clinician, must not prejudice him in the actual physical examination. Thoroughness in the physical examination of those persons not presenting symptoms is indeed as important as in those who do present symptoms. It is a well known fact

*Dr. F. M. Pottinger, The Canadian Medical Association Journal, 1927, XVII, pp. 1429-1434.

*Dr. Lawrason Brown, Journal American Medical Association, March 31, 1928, Vol. 90, pp. 1032-1038.

that many persons have early pulmonary tuberculosis, who do not have any symptoms, while others who have all the characteristic symptoms do not have the disease. Furthermore, tuberculosis is no respecter of persons. The rich can have it as well as the poor, the stout as well as the lean, and the aged as well as the young. The clinician, therefore, during the examination must ever be on his guard and bring into play all the diagnostic acumen at his command. A thorough examination of the chest cannot be made unless all articles of clothing above the waist be removed. The examination is carried out routinely, the methods of inspection, palpation, percussion and auscultation being employed. It is generally believed that the practice of inspection, of palpation and of percussion yield more or less equivocal data, yet it is advisable to include these methods in making an examination in order to note any seeming abnormalities and to weave these findings into the general clinical picture when examination is complete and a diagnosis to be made.

Inspection.

By inspection the form and movement of the chest are noted, which includes the shape of the chest, amount of expansion, local lagging, depressions and bulgings, and unilateral fixation. Such abnormalities are often present in pulmonary tuberculosis and may be found by carefully viewing the chest from all angles during both normal and forced breathing.

Palpation.

By palpation the clinician not only confirms the facts determined by inspection, and adds to their precision, but is also able to detect movements and vibrations which are too slight to be noted by the eye alone. *Percussion* reveals abnormal resonance in the lungs, both qualitatively and quantitatively.

Auscultation is by far the most important clinical method employed in the diagnosing of tuberculosis. Any changes are not infrequently found in the chest of a tuberculous patient. The evaluation of abnormal breath sounds,

however, without any other abnormal physical signs is difficult. Adventitious pulmonary sounds are elicited by means of auscultation and they include the most characteristic abnormal physical sign in pulmonary tuberculosis, namely, the rale. The presence or absence of rales largely determines the diagnosis made by the clinician. They are often the first signs to present themselves in the disease, and are rarely absent when the physical signs are well developed. Rales may or may not be heard on normal breathing. The secret in the detection of rales lies in knowing how to produce them. The method employed consists in having the patient give a slight, hacking cough and then take a moderately quick inspiration. Usually the rales, if present, will be heard during the inspiration following the cough, but may be detected at the end of the expiration with the cough. Failing to detect rales by this method, the clinician resorts to another practice which consists in having the patient exhale half way, to cough with what breath is left and then take a quick inspiration. Many patients become greatly fatigued when these methods are employed and frequent periods of rest are necessary. Rales are not peculiar to pulmonary tuberculosis. They are sometimes found in other pulmonary conditions but the persistent occurrence of moist rales in the upper third of the lung is evidence in the majority of cases of pulmonary tuberculosis.

Activity.

The disease has been considered so far with regard to the diagnosis without any reference to activity. The physical findings are of little value in determining the presence or absence of activity. Rales may be present without any activity. The clinician in diagnosing activity depends largely upon the presence of constitutional symptoms such as fever, rapid pulse, night sweats, malaise, and fatigue. The most important general symptoms to consider are fever and rapid pulse, attributable to no other cause. If these occur in a patient already diagnosed as tuberculous, the activity of the disease is assumed.

This concludes the examination. The

complete clinical picture from which a diagnosis is made is then considered. This picture will be composed of the significant points disclosed by the history of the patient and the above mentioned methods of examination.

It should be stated here that the foregoing methods of diagnosis are used in the examination of adults. Occasionally, children are examined at the clinics, and in some instances a diagnosis of suspected hilum tuberculosis is made. The clinician bases his diagnosis on a consideration of the history, symptoms and general appearance of the child, realizing that physical findings in children are not significant and that before an absolute diagnosis of hilum tuberculosis can be made, the examination must include a study of the roentgenograph and a tuberculin test.

That errors in diagnosis are apt to occur is not denied. The examination of certain persons having tuberculosis does not reveal any characteristic physical findings; on the other hand, the examination of certain persons free from tuberculosis sometimes discloses signs that would lead to a suspicion of the disease. Fortunately, such equivocal findings in patients are in the minority, and it is thought that the percentage of misdiagnoses is a minimum.

Clinics were recently held in a town where an X-ray and the services of an experienced roentgenologist were available. Ten of forty-eight persons examined by the clinician were diagnosed as positive. The roentgenologist made X-ray plates of these and concurred in the diagnosis of every case.

X-Ray.

It is true that the X-ray in a certain number of cases, notably those in the very early stage, alone makes a diagnosis possible. To be able to have roentgenographs of every person examined would be the ideal condition. Unfortunately, this is not possible in conducting clinics, nor is it necessary for the diagnosis of the majority of cases.

When the clinics were first put into operation by the State Department of Health, the use of portable X-ray was considered. Several factors made it seem inadvisable to

include such a machine in the paraphernalia of the clinician; namely,

- (1) The cost involved in the purchase of the machine.
- (2) The difficulty in transportation of the equipment.
- (3) Clinics are held in towns not having electric power.
- (4) The cost of employing a trained technician.
- (5) Doubt as to the value of a plate made by a portable machine.

It must be remembered that* "X-ray examinations are also attended with considerable degree of error, and the more so when the X-ray is used by men who are not particularly skilled in making chest plates. The X-ray does not show everything. A considerable degree of tuberculosis may be present and not show on the plate. On the other hand, carefully taken pictures, particularly if they be taken both dorso-ventrally and ventro-dorsally, may be depended upon to eliminate a source of error met in plates taken only in one direction."

Sputum Analysis.

The clinician always recommends a sputum analysis on all persons diagnosed as positive or suspicious. Naturally such analysis cannot be made at the time of examination, and therefore, does not constitute a factor upon which the clinician bases his diagnosis.

Sputum analysis is important in diagnosis, but it must be borne in mind that it, too, is attended with considerable degree of error. The patient is taught how to collect sputum for analysis. The sputum raised early in the morning from the lungs is that in which the bacilli are most liable to be found. Several analyses from each person are necessary and even then the absence of bacilli does not always mean the absence of tuberculosis. Only repeated negative reports are significant in diagnosis and a positive report should be confirmed. In the

*Dr. F. M. Pottinger, The Canadian Medical Association Journal, 1927, XVII, pp. 1429-1434.

examination of sputum one of the concentration methods should be employed.

THE HOME MANAGEMENT OF A PATIENT HAVING PULMONARY TUBERCULOSIS

It is not my intention to discuss in this paper the treatment of tuberculosis in general, but only the management, and this in brief outline, of that type of patient who is amenable to successful treatment in the home. It is fully realized that the home and economic conditions of many patients will not permit of the carrying into effect those measures which are necessary in the treatment and in the prevention of the spread of the disease. Furthermore, certain types of the disease require special medical and surgical treatment which can be given only in a hospital.

In the home management of a patient, the physician has two objects in view:

- (1) Successful treatment of the patient.
- (2) Prevention of the spread of the disease to other members of the household.

The fundamental factors essential in the successful treatment of the disease are:

- (1) Rest.
- (2) Food.
- (3) Fresh air and sunshine.
- (4) Proper mental attitude of the patient.

Only after the patient has acquired the proper mental attitude toward his disease and its manner of cure can treatment in the home be thoroughly successful. Therefore, in the beginning it is necessary to inform the patient of the nature of his malady and of the period of rest, and in most cases, inactive life, which are essential for a cure. *Rest* is the most important element in the treatment. This generally means rest in bed. The measure of rest, however, depends necessarily on the condition of the individual patient. By rest is meant mental as well as physical.

Fresh Air and Sunshine.

This measure, of course, must be carried out under as ideal conditions as possible. This necessitates the establishment of prop-

er living quarters. A sleeping porch for the patient is most desirable, but in the absence of this a well-ventilated, separate room is a necessity. When it is remembered that securing an abundance of fresh air and sunshine for the patient is the object in view, the location and structure of the sleeping porch or room becomes an important consideration. Where possible, it is well to give attention to aesthetic features of the living quarters, as well as to those of comfort and convenience. The morale of the patient is usually stimulated by cheerful environmental conditions.

Food.

A well-balanced diet suitable to the needs of the individual patient is necessary. This diet usually includes milk and eggs, but not to the exclusion of other essential articles of food. Monotony in menus is to be avoided since it is most desirable to maintain at all times the patient's interest in his food.

THE EMPLOYMENT OF HYGIENIC AND SANITARY MEASURES

Instruction as to measures of personal hygiene and general household sanitation should be given the patient and his family. This would include chiefly,

- (1) Proper sputum disposal.
- (2) Control of coughing and sneezing.
- (3) Observance of proper health habits.
- (4) Care of patient's room, dishes, articles of clothing, bedding, etc.

Education.

Mention of one important factor in the management of a patient having tuberculosis has been purposely postponed until this time. Reference is made to the education of the patient.

It has been well said that sanatoria are educational institutions. A patient in such an institution is not only taught the nature of the disease and the method of treatment and prevention, but is also placed under strict discipline and constant supervision. Such education and supervision are, obviously, of vital importance in the home management of a patient and must be carried on constantly if the desired results are to be obtained. The busy, general practi-

tioner cannot reasonably be expected to supervise all the details of internal management of the home. It is here that the cooperation of the follow-up nurse with the physicians plays an important part.

The place of the follow-up nurse in the State Control Program is to supervise the carrying out of the physician's instructions, and to educate the patient and his family as to the necessity of observing meticulously all prescribed hygienic and sanitary measures. Never does she institute measures of treatment on her own initiative.

Summary.

1. History of intimate and prolonged exposure to infection, particularly during childhood and early adult life should be carefully considered.

2. In the diagnosing of tuberculosis the localizing symptoms are significant, particularly, hemoptysis and pleurisy with effusion—neither of which can be otherwise accounted for.

3. The secret in the detection of rales lies in knowing how to produce them.

4. The persistent occurrence of moist rales in the upper third of the lung is presumptive evidence of pulmonary tuberculosis.

5. The constitutional symptoms are important in determining activity of the disease.

6. A roentgenograph, when possible, is desirable for a recheck in every case. In some cases it alone makes a diagnosis possible.

7. Sputum analysis should always be made. It should be borne in mind that only repeated negative reports are significant and a positive report should be confirmed.

8. The home and economic condition as well as the type of the disease, determines whether successful treatment can be carried out in the home.

9. Education and constant supervision are essential factors in the home management of a patient.

PRESIDENT STEM: This past year I was associated very closely with a man who ran a sanatorium in Texas, Dr. Sam Thompson. His letterheads stated this: "A Sanatorium for the Education of Tubercular Specialists." I was a little bit amused. It didn't say the treatment, but a sanatorium for the education of tubercular specialists.

One thing that he brought to my notice and I thought of it very carefully a long time ago is the inability to diagnose clinically or probably by X-ray tuberculosis in its very early stage. Tuberculosis, when at a point that you could hear with a stethoscope, gives you a clinical sign, had already extended beyond the area of your stethoscope, and if you would think of it, that is true. When you have a spot, stethoscope in which you can hear well, you already have an infection that extends beyond that point in the lung.

A CLINICAL STUDY OF NEWGROWTH OF THE TESTICLE*

RUSSELL A. HENNESSEY, M.D., AND ALFRED D. MASON, M.D., Memphis.

INCIDENCE

NEWGROWTHS of the testicle occur rather infrequently. In 23,362 cases of malignant tumors in men, the testicle has been found primarily involved in 127 cases, an average of 0.57 per cent. In 12,000 urologic cases at the Brady Urological Institute, there are 25 tumors of the testicle or 1-5 of 1 per cent. These tumors

are relatively more common in undescended than in normally placed organs. The two sides are involved with about the same frequency. Bilateral involvement rarely occurs, and is then usually in cryptorchids. The average age is 35, which is somewhat younger than the average for other malignant tumors. They are rare below 18 and over 50, but cases are reported in infants. While our series consists of only eight cases, certain important information may be gleaned from a critical review. The young-

*Read before the Tennessee State Medical Association, Jackson, April 11, 1929.

est in this series was five years, and the oldest 55, the average age being 31 years. In two cases the involved testicle was undescended.

ETIOLOGY

As in the case of other newgrowths, the etiology is unknown. Trauma has been stressed by some authors as a causative factor, but in 70 per cent of Young's series there was no history of trauma, and he believes the trauma merely calls attention to a pre-existent growth. Trauma, in the nature of chronic irritation of an undescended organ, may be of some etiological significance. Four cases in this series gave a history of recent trauma.

PATHOLOGY

No definite classification of tumors of the testicle has been agreed upon. Their complexity has led to the most diverse opinions. In the literature cases are found reported with upwards of twenty-five different pathological classifications. Sarcoma is frequently reported, but it is now generally agreed that sarcoma is very rare. Dew, in a recent article, states that only about 2 per cent of testicular tumors can be regarded as primary sarcomata. Ewing and others maintain that nearly all tumors of the testicles are teratomas, arising from totipotent sex-cells, and that the monodermal forms of these growths represent one-sided developments of tridermal teratoma. He classifies the varieties of teratoma testis in three groups:

- (1) Adult embryomas or teratoma.
- (2) Embryoid, teratoid, or mixed tumors.
- (3) Embryonal malignant tumors.

Another school maintains that there is a group, other than teratomas, or pure tumors originating from the cells of the seminiferous tubules. Seminoma is the term usually applied to this type of tumor. Tumors in undescended testicles are the same type as those found in the scrotum. These various classifications are only of academic interest, and are unimportant in practice. Benign tumors of the testis are exceedingly rare, only a few reliable reports existing. This fact makes it wise to consider all tu-

mors of the testicle as clinically malignant. The external appearance of teratoma and seminoma is similar, but on section the difference is often marked. The seminoma presents a grayish white, solid, opaque picture characteristic of a medullary type of growth. There are no cysts. The tunica albuginea is distended, but not penetrated by the tumor. The tumor usually begins in the region of the rete testis, and as it grows it pushes aside, but does not invade, the testicular tissue. There may be a moderate degree of hydrocele, which is usually more marked in the larger tumors. Microscopically, the tumor is composed of strands and acini of various sizes, separated by connective tissue trabeculae. A uniform picture is ordinarily seen throughout the tumor, but one occasionally finds a bit of cartilage or a few glands somewhere in the mass.

Teratomata, on the other hand, present a much more variegated picture, depending upon the proportions of cysts, cellular areas, cartilage, hemorrhage, necrosis, etc. It also does not penetrate the tunica albuginea. There are usually multiple cysts of varying size and shape, with islands of cartilage or other solid tissue between. Microscopically, the essential feature is that tissue from two or three germ layers is present. Certain cases have been reported in which teratomata were apparently entirely benign. This, however, is very exceptional, for malignant degeneration is nearly always present, with the tendency for the derivatives of one germ layer to overgrow the others. The solid areas often show cellular foci composed of embryonal connective and myxomatous tissue, or very cellular masses of smooth muscle cells, either of which may compose the bulk of the tumor and give origin to metastasis.

Metastasis usually occurs primarily by way of the lymphatics. Metastasis to the regional lymph nodes may occur very early or late, but is usually early. There is no method by which early metastases can be determined or anticipated. The spread of the disease may be very rapid or be arrested in the regional lymph nodes for a long time. Young reports a case in which the patient had metastasis before admission,

and before death the tumors distending the abdomen had a volume almost equal to that of the remainder of the emaciated patient, yet at autopsy not a single metastasis could be found anywhere in the body except in the retroperitoneal nodes. This, however, is usually not the rule, as the barrier offered by these small lymph nodes is weak, and extension occurs by way of the thoracic duct, so that the left cervical glands and the lungs are next commonly affected. In the late stages metastases may be found in the liver, spleen, intestines, kidneys, long bones, spinal cord, etc. Metastasis, or even extension, may occur by way of the blood vessels, but this is much less common than the lymphatic route. Lymph vessels follow the course of the spermatic vessels and drain into four to six retroperitoneal lymph nodes which lie alongside and upon the vena cava for the right, and the abdominal aorta for the left testicle, from the level of the renal vessels to the bifurcation. The inguinal glands are not involved except in rare instances of direct extension of the tumor to scrotal tissues or skin, but ordinarily the firm barrier of the tunica albuginea prevents this extension. The metastases usually present the same picture as the malignant portion of the tumor.

SYMPTOMATOLOGY

There is no characteristic clinical picture. No age is immune. In the early stages the local enlargement is usually the only symptom. This is practically always painless. Local tenderness is also commonly absent. In some cases the tumor may be present for a long time with very little or no growth, when suddenly, for no apparent reason, or after an injury, it will begin to grow with alarming rapidity. The date of onset will usually be given by the patient as that when rapid growth began. The rapidity of the growth is rarely sufficient to simulate an acute orchitis or other inflammatory processes. Symptomatic hydrocele may complicate the picture.

The later symptoms vary with the type and extent of metastases. Unfortunately, metastases to the retroperitoneal lymph glands give no clinical evidence other than

palpatory and when these glands become large enough to be palpable, the disease has usually reached a late and inoperable stage. In this series, four cases had extensive metastases within two months after they were first examined.

As the metastases enlarge, their pressure may cause edema of the leg, ascites, intestinal obstruction, or hydronephrosis. Cough, hemoptysis, or pleural pain strongly suggest pulmonary metastasis.

DIAGNOSIS

Because of the rapid course of tumors of the testicle, early diagnosis is most important. In this series the average duration of symptoms before the patient reported for treatment was six months. There are no pathognomonic signs or symptoms, and the diagnosis is largely a matter of exclusion and depends principally upon local palpation. They may vary markedly in size, sometimes being little larger than the normal testicle, at other times reaching huge proportions. Heydenreich reports a case in which the tumor extended to the level of the knees. Such extreme enlargements are usually complicated by hydrocele. In the typical case, the testis is symmetrically enlarged and has a smooth, regular surface. There may be nodulation, but it usually occurs late. The consistency is ordinarily one of uniform firmness. There may sometimes be found areas of fluctuation due to cystic degeneration or localized necrosis. In early cases the epididymis is ordinarily easily recognizable, but later may be completely obliterated. The spermatic cord is found to be normal or slightly enlarged, and is rarely indurated or nodular. The vas is usually quite normal. On inspection, the condition of the scrotal skin depends on the size of the tumor. In large tumors it is smooth and tense, and large veins may be seen through it. Edema and ulceration are rare.

Syphilis, hydrocele, hematocele, spermatocele, and tuberculosis may at times have to be differentiated from tumor. Gumma simulates tumor more often and more closely than any other condition. Gumma seldom reaches the large size of some tumors,

and has more tendency to ulcerate. If the Wassermann test is negative, it is most probably not a gumma, but if the Wassermann test is positive, one should be careful in drawing conclusions from it, because syphilis and malignancy of the testicle may co-exist. An intensive course of antiluetic treatment may be given, but should not be the cause of long delay if no diminution in the growth is noted. If doubt remains, it is preferable to remove a gummatous testicle than to delay in the removal of a malignant tumor.

At times hydrocele and hematocele presents difficulties in differentiation. A hydrocele may be present in conjunction with a tumor, and completely prevent the palpation of the tumor. Transillumination and fluctuation may be absent in hematocele, and certain tumors in which mucoid material and cartilage predominate may transmit light and be fluctuant. At times aspiration of a hydrocele may be justifiable in order to palpate a co-existent tumor, but great care should be taken not to puncture the tumor. One should always palpate a tumor with the utmost gentleness to avoid forcing tumor cells into the blood or lymph channels. Spermatocoele is usually in the form of a small cyst of the globus major of the epididymis, and is seldom large enough to cause any confusion. When any doubt exists it is always better to make the diagnosis of a cancer, and subject the patient to immediate exploratory operation.

Tuberculosis seldom gives rise to confusion, and only in those rare instances of massive tuberculous epididymo-orchitis. The epididymis is usually the seat of primary involvement, and the disease produces characteristic nodulation due to the presence of tubercles. Rectal examination is of especial value in this connection. Testicular neoplasms never induce any changes in the prostate or seminal vesicles, but tuberculosis of the epididymis is usually associated with induration and nodulation of these organs.

PROGNOSIS

The course of the disease is progressive and usually rapidly so. Sometimes there may be periods of remission in which lit-

tle if any growth seems to occur. In Young's series, 64 per cent of those dying lived one year or less, and only one lived over three years. He states that the average survival after onset, with no allowance for quiescent periods, treatment, or other life-lengthening factors, is only two years and seven months. Recurrence, local or metastatic, is usually early, but may be occasionally delayed for a long time. Chevasu comes to the conclusion that recurrence after the third year is very rare, and that therefore a four-year cure may be considered as practically definitive.

Orchidectomy alone, even with early diagnosis, cures less than 15 per cent of cases. This very high mortality is appalling, and makes it imperative to supplement castration by radium, roentgen ray, or more radical surgery. Some authors report very striking results from radiation, even large metastases melting away. Others, however, find this form of treatment usually resulting in failure. This variation in results is no doubt due to the difference in the grade of malignancy of the tumors encountered. Baringer and Dean state that the more embryonal types of teratoma react more favorably to radium and roentgen rays.

TREATMENT

An early and accurate diagnosis of every testicular enlargement is most important, and whenever there is doubt, there should be no hesitation in exposing the tumor to surgical inspection. Hematocele, hydrocele, and tuberculosis require surgery, so that the only possible sacrifice is that of an occasional gummatous testicle. A more conservative policy is sure to result in fatalities from overlooked malignant growths.

The different methods of treatment that have been proposed are: Orchidectomy, radical operation, radiation with radium or the roentgen rays, and the injection of such substances as Coley's serum, Beebe's autolysin, etc. It is generally agreed by most urologists that the only hope of reducing the present high mortality lies in surgery or radiation, or both combined. Radical operation is considered by many to be the procedure of first choice. This consist in re-

removal of the testis, epididymis, most of the vas deferens, spermatic cord, spermatic vessels, retroperitoneal lymph nodes on the affected side from the brim of the pelvis to the renal vessels, and the connective tissues, fat, etc., surrounding these structures and carrying the lymphatic vessels. Young states that, "In view of the magnitude of the operation, it is extraordinary how little shock is involved, how low the operative mortality, and how readily the patients usually recover."

Because of the uncertainty of the effect of radium and roentgen rays on the growth, it is generally thought advisable to use this form of treatment to supplement surgery, and as a palliative measure in advanced and inoperable malignancies.

SUMMARY

(1) Tumors of the testicle may occur at any age, but most often during the period of maximum sexual activity.

(2) There is much diversity of opinion as to their pathology, but the majority have been found to be of teratomatous origin.

(3) Testicular newgrowths are usually rapidly fatal unless removed early.

(4) Enlargements of the testicle should always suggest newgrowths and early surgical exploration insisted upon.

(5) Metastases usually occur early, and by the lymphatic route.

(6) Orchidectomy alone is often insufficient to prevent recurrence. Radical resection may be treatment of choice.

(7) Radium and roentgen rays are of value as a supplement to surgery, and as a palliative measure in inoperable cases.

(8) A series of eight cases is herewith presented; four personal cases, and four cases from the records of Memphis hospitals.

DR. P. G. MORRISSEY (Nashville): Mr. Chairman and Gentlemen: I feel somewhat embarrassed in attempting to discuss this paper Dr. Mason has so fully and completely covered. I don't believe he has left out one single item that I could add to this very interesting subject.

I merely wish to impress upon you the fact that no age is immune. The doctor brought that out

in his paper, and I believe the literature compares very similar to his.

Another feature is the early diagnosis, and that is one of the difficult problems we have, when we must remember that 60 per cent of enlarged testicles are syphilitic; 30 per cent tubercular, and the remainder is divided between neoplastic growths and other pathological conditions.

Another point is the progress of tumors in the testicles. The mortality rate given in the literature is practically 80 per cent, in both the unoperated and the operated cases.

The doctor went into the Hinman radical, surgical procedure in dissecting out the lumbar nodes, and the nodes in their order, and also the spermatic cord. I don't believe that that operation has been generally accepted. I think it has been condemned, for the simple reason that it does not offer these patients very much better chance to recover than a procedure which has been advocated lately; that is, the application of radium and X-ray before surgical interference and after amputation of the testicle, to be followed with the application of X-ray and radium.

There isn't anything else that I can add to the paper other than to say that I thoroughly enjoyed his paper.

DR. RUSSELL A. HENNESSEY (Memphis): I want to supplement what Dr. Mason read by reciting a few important factors in the recognition and management of testicular tumors.

It has been our experience that there is no pathological basis that determines a satisfactory prognosis. Some of the more simple growths of the testicle showed in our subsequent clinical observation a most extensive early metastasis, while some of the more malignant types based on pathological investigation have been quiescent over a period of several years, and have shown no subsequent evidence of metastasis. We are beginning to hope they will be included in that group of cures that are, indeed, rare.

I will be glad to show you some slides which we believe will show that the pathological study doesn't warrant a dependable prognosis in these cases.

The first case shows an embryoma, rather rich embryonal connective tissue, in an individual thirty-one years of age, who has now gone practically two years and shows no further evidence of metastasis, and no further evidence of malignancy.

This is the high power of magnification of the same case, showing a rather rich growth of the embryonal cells, the larger cells showing many mytotic figures and evidence of a rather actively malignant growth.

This next case is another in which the pathologist has seen fit to designate as an embryonal carcinoma. There is considerable defense mechanism evidenced by the presence of connective tissue and the defense effort to obliterate the new growth.

While the case is relatively new, having shown no evidence of metastasis for six or eight months,

we are rather hopeful because of this expressed defense on the part of the patient.

This case is one in which the pathological report and the subsequent clinical observation have tallied more accurately than in any other case that we have studied.

In this case the invasion of the embryonal carcinoma tissue or cells has gone on in a wanton fashion without any evidence of defense, necrosis of fibrous replacements.

This case was subjected to exploratory investigation because of a very small firm growth in the lower part of body testicle. Biopsy showed a most malignant type of tumor. For this reason, castration and removal of the spermatic cord to the internal ring was accomplished. This was followed by deep X-ray therapy given very liberally. In spite of these precautions, the patient developed recurrence in the course of two months' time, evidenced by a large mass deep in the abdomen, subsequently cervical lymph enlargement in the left side of the neck, and eventually a most extensive evidence of metastasis throughout the entire body, and the patient lived only a period of about six months. The primary growth was most significant, perhaps, not larger than a peanut kernel in the lower part of the left testicle.

The last case, in which a most careful pathological investigation was made, shows, as I stated in the beginning of my remarks, that the pathological finding and the clinical course in the majority of these cases do not tally. This case on pathological investigation showed the less malignant tendency of all the cases that we have reviewed. There was a great deal of necrosis on section, and a considerable amount of replacement with connective tissues; the smallest degree of invasion of embryonal cells and yet that case returned after the operation was accomplished in a period of two months presenting definite evidence of widespread metastasis.

In summarizing these findings, it seemed we were forced to the conclusion that the earliest possible investigation of testicular newgrowths should be made, exploring the testicle and making biopsy studies if uncertainty exists. Because of the high mortality attending all testicular growths, they should be given the most radical and most careful subsequent treatment that is possible.

DR. I. G. DUNCAN (Memphis): Mr. President, I want to compliment Dr. Hennessey and Dr.

Mason on this good and timely paper which they have presented and I agree with them on everything they have said, and I just want to go over a few points in diagnosis that I hope will make it a little clearer, if some don't quite understand.

The main conditions which are liable to be confused with tumors of the testicles are tuberculosis, syphilis, hydrocele and gonorrheal infection.

Now, a tubercular infection of a testicle is practically always secondary to an infection of epididymis which has been present quite a long period before the testicle becomes involved. So with this history and especially if there be present a discharging sinus and some symptoms of pulmonary tuberculosis, we are able to rule out tumors.

Gonorrheal testicles start with acute epididymis, comes on suddenly, usually with a chill, high fever, considerable pain, and usually last only a short time.

Hydrocele and tumors are rarely confused, and when there is a question, an exploratory should be done as in either case surgery is indicated.

Syphilis of the testicle is the most common condition which would be confused with tumors. It comes on gradually, is not painful, is usually bilateral and grows rather rapidly. A positive Wassermann in the presence of newgrowths of testicle is suggestion of a syphilitic infection but does not absolutely rule out a malignancy. Intensive antisyphilitic treatment should be given for a few weeks and if marked improvement does not take place the testicle should be removed, for it is better in doubtful cases to remove a syphilitic testicle than to take a chance with a malignant growth.

DR. MASON: I wish to thank you gentlemen for the able discussion.

Dr. Morrissey mentioned the radical operation. This operation, no doubt, has many advantages, but we haven't tried it because it seemed too radical in the face of slightly different results obtained; and we would rather depend on deep X-ray therapy.

Dr. Hennessey calls your attention to the fact that even the smallest of malignant growths may cause the death of a patient. One of our patients had a growth no larger than a peanut kernel, but it was rapidly fatal. For that reason, I would like to again stress the importance of early recognition of newgrowths of the testicle and early exploratory operation.

A FEW FUNDAMENTALS *

GEORGE MCSWAIN, M.D., Paris

We desire in this paper to briefly mention a few things which we, as surgeons, should not do while we have under consideration those things which should be done for our patients. Also to call attention to a few fundamentals in the management of the injured patient which may prove of inestimable value; in fact, may be the deciding factors in the outcome.

A patient who is injured in a wreck, or struck by a train, receives one contributing factor to his shock that is impossible to estimate by physical signs or by laboratory methods. This is the emotional feature caused by being suddenly thrown from his usual calm method of living, to the terrible confusion attendant upon a wreck or crash, and possibly with a ghastly, crushing wound.

With the question often asked, "What are we doing with our patients?" there are times when the very best we can do is to let them alone or do very little to them. Over-treatment in this field has resulted in disaster time and time again by the severe and rough manipulations of the operating surgeon.

Crile states that the one exciting cause of surgical shock is the surgeon: every contact of his instrument with an unanesthetized nerve fiber, nerve ending, or nerve filament; every drop of blood which he sheds; every moment he requires the continuation of an inhalation anesthetic; every moment he exposes sensitive tissues to the air; every interference with adequate ventilation of the lung—every thrill of fear he induces into the patient—each of these is an exciting cause of surgical shock, and the combined effect of all may result in death.

It has been proven in the laboratory and in the clinic that ether anesthesia per se offers no protection to the brain cells against trauma and that the lipid solvent

anesthetics break the arc which maintains consciousness beyond the brain cells in the efferent path. The afferent path from the seat of the trauma being unbroken, the traumatic impulses reach the brain cells as readily as though no anesthetic had been given—the brain cells showing characteristic changes due to this trauma in their futile effort to escape injury. These cell changes are easily recognized on staining and are not found when the afferent nerve impulses are broken by severing the spinal cord or by local anesthesia. Then how important is a gentle surgical technique when operating under any other anesthetic. Remembering that the brain is being damaged, is receiving just the same impulses as though no anesthetic were being given, and that it is only the paralysis that keeps the patient from crying out and that even in the unconscious state the brain cells themselves are making efforts to escape from the terrible trauma as evidenced by these characteristic cellular changes.

Curare produces an absolute paralysis of all voluntary muscles, but no anesthesia: it gives complete muscular relaxation, sufficient to satisfy the roughest surgeon—should a patient be operated under curare, there would be absolute stillness, the patient would not move, but there would be a terrific reaction after the effect of the curare had passed and the patient able to express himself. Yet it has been demonstrated that trauma under curare caused no more brain cell changes than equal trauma under ether.

A great deal of so-called surgical shock must then be really surgeon's shock. Much can be done to remedy the situation by the use of nitrous oxide oxygen anesthesia, supplemented by local infiltration or regional anesthesia. This protects the brain cells from emotional trauma, and the local anesthesia blocks off the traumatic impulses so that they do not reach the brain. It has been definitely shown that under equal trauma the changes in the brain cells were three

*Read before the Railway Section of the Tennessee State Medical Association, Jackson, April 9, 1929.

times as great under ether as under nitrous oxide, that the fall of blood pressure was two and a half times as great under ether and that the general condition of the animal was worse under ether than nitrous oxide. The answer is obvious: A surgeon operating under local and light nitrous oxide oxygen anesthesia must of necessity be gentle in his manipulations of tissue, for there is not the complete paralysis which ether produces and the patient will, to some extent, rebel by muscular rigidity and muscle spasm at least against any roughness. Post-operative discomfort is reduced under gas oxygen local sequence.

Much more importance should be given to the emotional stimuli than is often given. The effect of banging of instruments, dropping of pans, preoperative preparation, loud talking in the wash-up room, all have a direct effect on the patient waiting to be operated.

With the above for a foundation, we will take up a few specific instances in which it is possible and when too often too much surgery or manipulation is done. First let us consider the patient who is "shocked." Whether it be a train wreck, an automobile accident or a fall—the patient is "shocked." When hemorrhage is the cause of the shock, it must of course be arrested at once. All other cases should be given those things which will bring him out of his state of shock—external heat—they are all cold—such stimulation as may be necessary, hot tea or coffee, adrenalin, morphine, caffeine are all indicated on occasion; also the administration of warm saline solution beneath the skin or in the vein—a transfusion may be needed.

Give the patient a chance to react; if he will not react under this treatment, certainly he cannot be expected to survive further injury in the form of operative procedures. To pick up a cold patient, rush him to a hospital in a state of shock, right into the operating room for the manipulations of a surgeon for an hour or more may take from him his only chance for life.

Conservatism is indicated in most cases of skull fractures: a depressed fracture should be elevated when the patient reacts

from shock. Skull fractures cause their damage, not by the extent of the bony trauma, but to the extent that the brain is injured; the amount of increased intracranial pressure being the guide rather than the extent of injury to the skull itself. Extensive fractures at the base can be benefited very little, if any, by surgery, occasionally a subtemporal decompression may be necessary or life saving. But they need supportive treatment, watching the pulse and blood pressure, governing the line of treatment accordingly and with spinal punctures, and magnesium sulphate intra-cranial pressure may be kept below the mortal level, and thus accomplish most all that might be expected of any kind of surgery in this type of case. Fractures in general are oftentimes made worse by too much manipulation; too frequent examinations to ascertain if the bones are in apposition. Proper reduction under the fluoroscope, proper immobilization and time are the keynotes in treating fractures of the long bones; those near the joints require passive motion earlier than was formerly the custom. In scrubbing a limb for debridement in cases of compound fractures we should remember that every motion we give that limb is adding to the trauma, the jagged bony fragments piercing the already devitalized and lacerated tissues and our pre-operative preparation of the field accomplished with the least possible disturbance of the member. Compound fractures require dressings of the open wound and must be carefully seen after, as infection in a compound fracture is a serious thing—but after infection has become quiescent how easily may this latent infection be made to flare up into an acute condition again and possibly result in the loss of life by probing or other meddlesome manipulation. Routine daily inspections of simple fractures cause some disturbance of the fragments each time and may result in misplacement of fragments.

Frequently two operative procedures at intervals of a few days or weeks are more conducive to recovery than one or more major procedures at one sitting. From the time the decision is reached to do a surgical operation, whether it be abdominal, pelvic,

head, extremity or other type, our procedure should be to give the patient every possible protection.

A preliminary hypodermic helps, quiet in the room, in the wash-up room and in the operating room, and operation under anociation when proper assistants are at hand to give this. Regional anesthesia and nitrous oxide, the choice for reasons mentioned above; quick dissection, gentle manipulation, sponging of blood with a gentle touch; in grasping small bleeding vessel just catch the vessel and not a whole hemostat full of the surrounding tissue; because all these minor items add just a little bit to the total amount of trauma inflicted and increase shock by just that much, add to post-operative pain, to post-operative wound infection and may turn the scale against our patient. Nature must repair all those injuries. Retraction and packing may be accomplished easily and gently with a minimum of trauma by these necessary agents. All these are salient, fundamental points and should be a part of every surgeon's technique.

No operation should be hurried in order to establish a record for speed; at the same time rapid technique is an advantage to the patient, provided the operation is well done. Location of the pathology, relieving it, making whatever exploration appears necessary and get the patient off the table when these items have been completed. It appears a little difficult for some surgeons to stop an operation once they begin. I saw in one of the greatest clinics a master surgeon operating a case of perforated gastric ulcer. He closed the perforation, located and removed the appendix, came back and did a cholecystectomy, then returned to the stomach and did a gastroenterostomy. Now it ill behooves me to criticize such a surgeon; but for some reason this patient was removed to the anteroom before the completion of the gastroenterostomy and it appeared that he had a little more than he

could stand. It was the custom in this clinic to close them up in the operating room. All this was done in the presence of a hole in a viscus with a beginning peritonitis.

Post-operative care is an essential part of the management of any surgical case. Here, too, our vigilance should be maintained and toward the smaller—so-called—items of the case our attention to detail should be continued. Post-operative dressings may be made with very little discomfort—adhesive laced and dressings changed without stripping plaster each day—this makes patients very grateful. Retention sutures, if cut one day and removed the next, come away without the least bit of pain, and most of the time without the patient knowing they have been removed.

The more frequent use of local anesthesia for incised wounds, minor cases and many major procedures will produce better end results and less surgical shock.

In conclusion let me state that any effort on our part to protect our patients should be our duty. These efforts include protection from the emotional stimuli as far as possible. As stated previously, pain, fright, etc., together with the details mentioned, may be the deciding factors of the case. Emotional stimuli producing the same destructive action on vital organs, the brain, liver, adrenals, etc., as the traumatic impulses do.

Also it frequently takes courage to do nothing at all or almost nothing to a patient—but our efforts should be always directed toward his best interests—toward his ultimate recovery and his complete or as nearly complete as possible restoration to a normal, healthy being, with normal functions, after having passed through our hands—and any instrumentation or manipulation which is not conducive to this result should be entirely eliminated from the armamentarium of the surgeon.

BIOMICROSCOPY OF LENTICULAR OPACITIES*

ROBERT J. WARNER, M.D., F.A.C.S., Nashville.

THE term biomicroscopy is used here in accordance with the suggestion of Dr. Edward Jackson. It means the examination of the eye during life with the binocular microscope combined with Gullstrand's slit-lamp. The corneal microscope has been used for about thirty years, but on account of the poor illumination used it was not of much practical value until 1911, when the new principle of illumination, the slit-lamp, was introduced. With the combination of these two instruments the oculist is permitted to study the anterior third of the living eye under magnification of nine to one hundred and three diameters, depending upon the strength of the ocular and objective lens used. Of course, with the higher magnification the field of vision is very small; for example, a magnification of sixteen gives a field of 8.5 Mm., while a magnification of 41 gives a field of 2.2 Mm. The anterior third of the living eye can be studied as readily as a section can be studied in the laboratory, with the added advantage of observing the ever-changing pathology.

There are several types of these instruments on the market today and Bedell recommends the one with the mechanical stage microscope, while Graves recommends the one used without the mechanical stage, but which is placed upon a glass-top table, which permits the free movement of the microscope.

The examination must be made in a darkened room, and we have at our command four methods of illumination: (1) direct illumination; (2) examination by trans-illumination; (3) examination in the zones of specular reflection; (4) indirect illumination; but the methods of illumination will not be discussed in detail here.

By means of the slit-lamp examination

much has been learned in regard to the lens, especially its growth. The lens at birth is very small, consisting of the fetal and embryonic nucleus, and is surrounded by the lens capsule. With the growth of the eye the lens increases in size by adding new lens fibres on the outside of this fetal layer, thus pushing the capsule outward, just as a tree grows, pushing the bark outward. The lens contains reflecting surfaces known as surfaces of discontinuity, and one of these zones of discontinuity appears at the outer edge of this fetal lense or fetal nucleus. As the lens grows in size another zone of discontinuity appears at puberty and this limits the adult nucleus. Then another zone appears in the adult lens just under the capsule and this limits the cortex. Lying next to the cortex is the lens capsule. The fetal nucleus is always characterized by an upright Y-shaped formation on its anterior

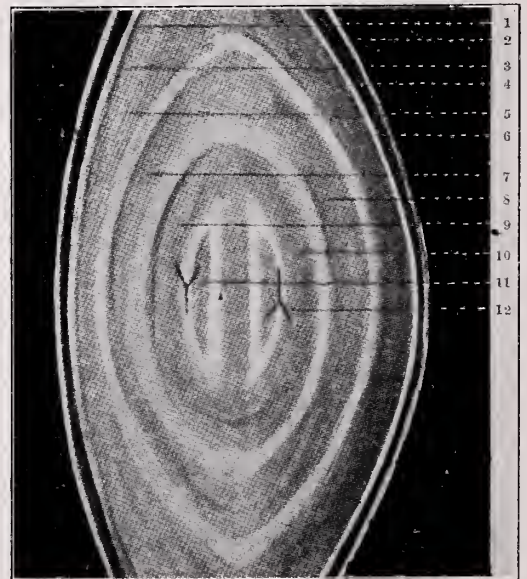


Fig. 1. A Diagram of Vogt's "Conventional Lens"

(1) Anterior capsule. (2) Posterior capsule. (3) Anterior subcapsular line. (4) Posterior subcapsular line. (5) Anterior cortex. (6) Posterior cortex. (7) Anterior adult nucleus. (8) Posterior adult nucleus. (9) Anterior foetal nucleus. (10) Posterior foetal nucleus. (11) Anterior embryonic nucleus. (12) Posterior embryonic nucleus.

*Read before the Eye, Ear, Nose, and Throat Section of the State Medical Association, Jackson, April 8, 1929.

surface and an inverted Y on its posterior surface. This is caused by the arrangement of the sutures. The positions of these Y's are very important, as it gives the examiner the depth of his focus.

A cross-section through the center of a diagram of Vogt's conventional lens, Figure 1, taken from Butler, shows:

1. Anterior capsule.
2. Posterior capsule.
3. Anterior sub-capsular line.
4. Posterior sub-capsular line.
5. Anterior cortex.
6. Posterior cortex.
7. Anterior adult nucleus.
8. Posterior adult nucleus.
9. Anterior fetal nucleus.
10. Posterior fetal nucleus.
11. Anterior embryonic nucleus.
12. Posterior embryonic nucleus.

Bedell states that in advancing cataracts the lens fibres are separated as clear clefts and later by accumulation of minute globules in these spaces. As the process advances the lens fibres are liquefied and broken down. Whenever the normal arrangement of the fibres are disturbed opacity develops. As the condition progresses these spaces are filled with broken lens fibres and the boundaries of the clefts become indistinct, and destruction of the lens fibres progresses. In the traumatic cataract the opening of the capsule is followed by absorption of the aqueous, causing a grayish swelling of the lens fibres with fluid space between. As the cortex swells the lens fibres are pushed forward through the opening in the capsule and the opaque lens is seen in the anterior chamber. If no inflammatory reaction sets in the entire cortex usually absorbs by the contact with the aqueous, and if this is the lens of a child with a soft nucleus, the nucleus will absorb, leaving the lens capsule present.

I wish to report briefly the following cases, which will illustrate a few of the various types of lenticular opacities as seen by me with the slit-lamp:

POSTERIOR POLAR CATARACT (FIG. 2)

Mrs. J. S.: Age about 55. First seen May 5, 1926. Vision each eye 20/50. A plus .75 sphere

equals 20/30. External examinations negative. When making the fundus examination a small opacity was noticed at the posterior surface of the lens. With the slit-lamp this opacity was found to be a posterior polar cataract, from the center of which remains of the hyaloid membrane was attached.

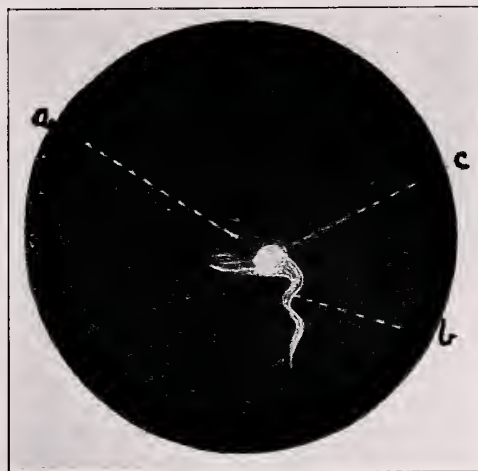


Fig. 2. Posterior Polar Cataract (Morsman)
(A) Optical center. (B) Hyaloid remnant projecting back into vitreous. (C) Normal area for attachment of remnant.

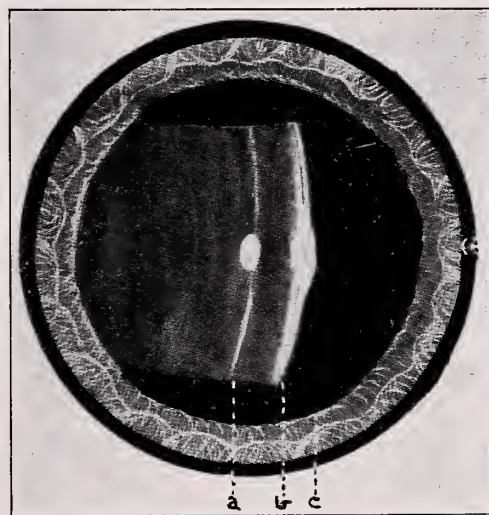


Fig. 3. Anterior Polar Cataract (Morsman)
(A) Senile surface of separation. (B) Anterior capsule, with anterior polar cataract showing in center. (C) Iris margin.

ANTERIOR POLAR CATARACT (FIG. 3)

R. G. F.: Age about 30. First seen March 8, 1928. Patient claims no light perception in right eye for past ten days following an injury to this eye. Examination of lens showed an opacity on the front surface of the lens. With the slit-lamp this was found to be an anterior polar cataract with an opacity in the deeper layer of the cortex separated from the capsule by clear lens fibres between these two opacities. This is a cataract

of old standing as proven by the clear lens fibres between these two opacities, which indicates the growth of the lens. This patient was afterwards proven to be a maligner, which accounts for the claim of no light perception.



Fig. 4. Recent Traumatic Cataract. Rupture of anterior capsule and subcapsular opacity.

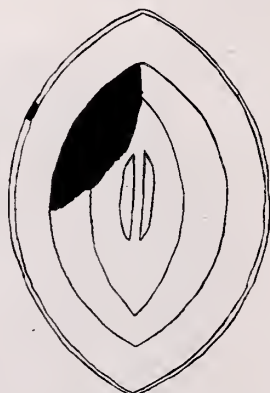


Fig. 5. Old Traumatic Cataract. Showing scar in anterior capsule; clear cortex; opacity of adult and fetal nucleus.

RECENT TRAUMATIC CATARACT (FIG. 4)

M. D. A.: Age 56. First seen September 27, 1926. Previous history: September 27, 1926, was struck in right eye with nail. Patient was seen by me thirty minutes later. Examination of eye showed a laceration of cornea through pupillary area, but it could not be determined, positively, whether the lens had been injured. The eye was treated with atropine, antiseptic ointment, banded, and an injection of milk was given. The usual amount of iritis developed, but this quieted down in due time. Examination made with a slit-lamp three weeks later showed the scar through the cornea. Aqueous normal. Rupture of anterior capsule of lens, and sub-capsular opacity of lens extending through cortex and adult nuclear layer. Since this opacity is sub-capsular and there being no clear cortex between opacity and capsule this cataract is due to the recent injury.

OLD TRAUMATIC CATARACT (FIG. 5)

W. E. P.: Age 61.

Previous History. When about eighteen years of age while working in a machine shop was struck in the left eye by a small piece of metal. He was immediately treated by a local oculist, who told him that he removed the foreign body from the cornea. Since this accident the vision has been blurred in this eye, and when looking at a light numerous circles would appear around the light. There has been no pain in the eye.

Present Complaint. Poor vision in the left eye since the age of eighteen. Examination of right eye, vision 20/50, several old pigment spots in the choroid. Left eye, pupillary reaction normal, vision light perception and projection. The lens contains a brownish opacity in the upper temporal quad-

rant. With the slit-lamp an old scar extending through the cornea could be found. The aqueous normal, the lens capsule directly behind the corneal scar contains a scar. The cortex of the lens is normal. The adult and fetal nuclear layers contain a brownish opacity. X-ray of the eye negative to foreign body.

This is an old case of traumatic cataract, diagnosis based upon the following facts: Old corneal scar. Scar of the lens capsule, and opacity of adult and fetal nuclear layers. The cortex being clear shows that the injury occurred before the patient was fully grown.

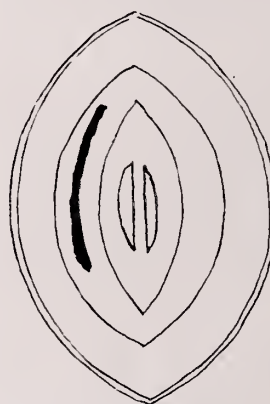


Fig. 6. Old Traumatic Cataract. Showing opacity in adult nuclear layer. Lens capsule and anterior cortex clear.

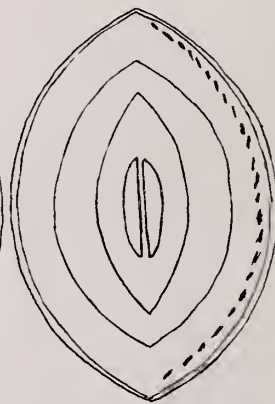


Fig. 7. Posterior Saucer-shaped Cataract. Opacity of single layer of posterior cortex. Numerous vacuoles situated between the opaque fibers.

OLD TRAUMATIC CATARACT (FIG. 6)

L. D. L.: Age 31.

Previous History. At age of 15 was struck in left eye with corn cob. Following this he noticed his pupil was enlarged and the vision impaired in this eye. There has never been any pain. During the recent war he passed physical examination and was sent overseas. While in the army this eye was treated, and the vision somewhat improved, but never normal.

Present Complaint. October 9, 1926, while crossing the street he was struck on left side of head by an automobile. He had a fractured skull, and was unconscious for several days. Upon recovering from this accident he noticed the vision impaired in the left eye, and wished to know if the accident had anything to do with the poor vision in this eye.

Examination. Right eye: Vision 20/20. All examinations negative. Left eye: Vision 5/200. The pupil is enlarged, and reacts very sluggishly to light. With oblique illumination a cataract can be seen. With slit-lamp the cornea and aqueous are normal, and the lens capsule is normal. In the outer portion of the adult nuclear layer the cataract can be seen. There is a clear portion of the lens between the opacity and the cortex. The

opacity is of rosette shape, and the sutures of the cortex are easily distinguished. The fetal nucleus appeared normal. Examination of vitreous and fundus negative.

Since a traumatic cataract occupies the sub-capsular layers of the cortex it is evident that this cataract is of old standing, as the cortex in this case is clear. Since there is no injury to the lens capsule this is an indirect form.

POSTERIOR SAUCER-SHAPED CATARACT (FIG. 7)

H. M.: Age 43. First seen January 2, 1928. Chief complaint, poor vision of left eye of five years' duration. Family history, father and two sisters have cataracts. Vision right eye, 20/20; left eye, 20/100; unimproved with lens. Right eye examination negative. Left eye examination negative except for lens. Slit-lamp examination with dilated pupil revealed an opacity which was confined to a single layer of the cortex near the posterior capsule. Numerous vacuoles situated between the opaque fibres. During the past year these fibres are slightly more opaque. With the ophthalmoscopic examination one would not judge that these opacities would cause such an interfer-

ence with vision, but when seen with the slit-lamp the poor vision is readily accounted for.

ZONULAR OR LAMELLAR CATARACT (FIG. 8)

J. T. S.: Age 7. First seen January 23, 1928. Chief complaint, poor vision of both eyes since birth. Vision each eye, 10/200, unimproved with lens. The examinations of the eyes were negative otherwise than the lenticular opacities. With the dilated pupil the slit-lamp examination showed a clear adult nuclear layer, and an opaque area lying just within the fetal nucleus, but the embryonic nucleus contained only a few punctate opacities. Three discissions were performed on the left eye which resulted in a good clear pupil and vision of 20/40, with a plus 10.00 sphere. Discission was performed on the right eye last month and the lens is now slowly absorbing. It was very interesting to observe the absorption of the lens fibres through the opening made in the lens capsule.

NOTCHED LENS

R. S.: Age 8. First seen September, 1927. An explosion of dynamite caps in 1926 struck him in both eyes. The left eye was enucleated. The right eye contains an intraocular piece of dynamite cap and detachment of the retina. In November, 1928, the lens came forward into the anterior chamber. With the slit-lamp, it is seen that the periphery of the lens is notched, due in all probability to the breaking loose of the suspensory ligaments. The whole lens is slightly hazy but no opacity has developed as yet.

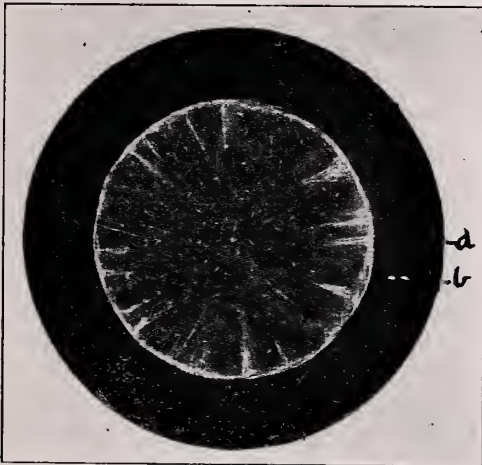


Fig. 8. Zonular or Lamellar Cataract (Morsman)
(A) Dilated margin of pupil. (B) Clear cortex.
Opaque area represents the nucleus of the lens.

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THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

H. H. SHOULDERS, M.D., Editor and Secretary

AUGUST, 1929

EDITORIAL

Some effort was made last year to increase the number of pages of advertising in the JOURNAL by running a DIRECTORY OF PHYSICIANS. The plan was approved by the Board of Trustees at the meeting held in February, 1929, but it was thought wise not to push the matter until the House of Delegates of the State Association acted upon it. The matter was submitted to the House of Delegates and approved by that body at the meeting held in Jackson, in April, 1929, so that all the steps have been taken to secure the approval of all concerned.

There can be no objection raised on ethical grounds. In fact, a number of very high class state journals are running such a directory.

Members of the Association are now in position to decide for themselves whether they want the directory or not. You have all the facts before you.

The following is a sample of what will be run. It is taken from the Journal of the Indiana State Medical Association:

Phone: Main 2290; Residence, Humboldt 1401

C. E. ORDERS, M.D.

General and Abdominal Surgery

350 Bankers Trust Bldg. INDIANAPOLIS, IND.

have multiplied in recent years. A number of younger men in the profession who are not well known throughout the state have equipped themselves to do special work. There is no good reason why men engaged in special work should not make the fact known to the doctors of the state. No statements beyond those run in the card will be permitted, of course.

The cost will be on the basis of a full-page ad in the JOURNAL for twelve months, which will be \$18.00 per year per card running ten cards to the page. We will not run any cards until a sufficient number of contracts to run a page have been signed. Payment for running the cards would be made semi-annual in advance.

We do not expect to use high-pressure salesmanship in building up this directory, nor do we expect to place it on the grounds of charity.

The financial condition of the Association, as shown by the last audit, is sound. The roll of members at the present time is equal to the largest enrollment we have ever had at this time of year. Owing to the work that lays before the Association for the next eight months the expenditures will be heavy. These expenditures will not be of a current nature. Next year will be the year for the centennial celebration and no one at the present moment can anticipate the cost of all the efforts that are to be made in making this event a success.

Members of the profession who are interested in space in the directory are requested to write the JOURNAL at once and a page will be started as soon as ten contracts have been signed.

The following article is taken from the *New York Times*, as of July 7, 1929. The heading supplies all the information necessary as to the name of the author and as to the subject treated.

It is reproduced in the JOURNAL because it is representative of the propaganda that is being put out to the public at the present moment and which the profession is compelled to combat.

There are now before me three clippings of articles and editorials that have appeared

It will be noted that the card shows the name, the location, the 'phone number and the specialty of the doctor.

The reasons for running such a directory

in the lay press in different parts of the country within the last few days. One of these is a very sensible and excellent editorial which appeared in the *Memphis Commercial Appeal*, as of July 17th.

Space will not permit a reply to all the questions raised and the assertions made in this article. It will be noted that in the main the statements are very broad generalizations and that when figures are used they are well rounded thousands, millions or billions. One or two assertions will reveal the utterly misleading character of the entire article. For instance, after the assertion that four billions of dollars have been invested in hospitals there follows this statement, "But until recently America's billions of dollars of investment in hospitals and clinics almost entirely ignored the man of moderate means." If this statement were true it would be pathetic. As a matter of fact, there are more hospital beds available to sick people at a price that is below the cost of maintenance than there are beds available above the cost of maintenance. *The charity beds and the beds available at low cost constitute an overwhelming majority of hospital beds in this country.*

The author of this article fails to define what he means by the term "people of moderate means." Somebody else may give the term another definition that is different from his. Until this term has been given a meaning his article is utterly purposeless except to inflame the public against the profession of medicine.

I am reminded of an assertion made by a character in a recent popular book of fiction. The character, Mrs. Underhill, had few responsibilities and duties. She was well provided for by an indulgent husband. She was evidently a lady of intelligence and refinement. Notwithstanding all this she became bored with her lot and boldly asserted that "*she was going to learn something about something and do something about it.*"

One easily can find sociologists and socialists of ability and refinement who can inflame the public if someone else will furnish

them the money and give them an opportunity for publicity.

It seems never to occur to any of these agents that "the cost of medical care" is but one of the items on the household budget. There are the items of housing, food, clothing, bedding, car, radio, etc. All these items are on the budget of the average American home today.

No one can deny that the housing condition, the type of food that is served and the type of clothing that is worn have a bearing on the health of the people.

It is also reasonable to assume that the author of this article knows more about any other item on the budget than he knows about the one he discussed.

It seems logical to suggest to the President of the Julius Rosenwald Fund that he take steps to reduce the cost of some of the other items on the budget and then the cost of medical care can be met without hardship.

It seems to us that everything costs too much. Children's shoes are very high. A small chute to place in the children's playground was priced at \$17.50 at Sears, Roebuck & Company's retail store the other day. That wonderful organization might tackle the reduction of the cost of other items on the budget with a little more propriety than the cost of medical care.

Medical men and hospitals, too, have been scaling prices to meet the circumstances of the average man for years. There is nothing new in that suggestion. Under existing circumstances the profession of medicine and hospitals have made more progress and are doing their particular job in the community better, in our opinion, than any other group of citizens with a particular job to perform. Medical fees have come down since the war—they have not gone up.

There is a possibility of great harm in this movement on the part of these philanthropists, and we see no possibility for good either to the public or the profession.

We will again repeat—if you socialize medicine, you may expect business to be socialized soon thereafter.

MEDICAL COSTS TO SUIT MEN OF MODERATE MEANS

THE PRESIDENT OF THE JULIUS ROSENWALD FUND
SEES THE NEED OF CARE THAT IS ADEQUATE
AND AVAILABLE AT A PRICE THAT MOST
PEOPLE ARE ABLE TO PAY

Medical service at reasonable cost to people of moderate means has recently been the subject of lively discussion both within and without the medical profession. The following article, viewing the progress that has been made toward the ideal of "good democracy and sound economics," and telling of the criticism it has encountered from some of the medical fraternity, was written by the president of the Julius Rosenwald Fund.

BY EDWIN R. EMBREE

The man of moderate means cannot afford to give charity and is too proud to receive it. He cannot afford to pay more than the service costs in order that some one else may benefit from his over-payment, and he does not want any one to give him charity. This man, who represents the great bulk of the people, demands that medical services be so organized that careful diagnosis and scientific treatment may be furnished to him at a price which will cover the cost and yet will be within his means.

Vociferous elements of county medical societies act as though medical service were something which belongs to the doctor. But the physician is only one of the parties at interest. The patient is equally concerned and the public at large has an interest in the control of disease and the protection of health. Furthermore, the lay public has furnished the great sums running to billions of dollars that have created hospitals and medical schools.

Physicians, like members of other professions, have worked out rules of conduct. These may be worth while as guiding principles for the profession, but if there is a conflict between codes of ethics and public needs, the decision must be made in favor of the public. When the Hippocratic oath emphasizes service rather than gain and protects the privacy of the relation between the physician and the patient, it is dealing with human relations, ethical relations, and protecting both physician and public.

CONDITIONS THAT ARE ALTERED

But when a rule is made defining what physicians may or may not do as to their employment, this is not ethics but business practice and must be adapted to social and economic conditions as these alter with time. No code adopted in one age can be treated as inviolable in a new age and under new conditions. No physician today would feel justified in following slavishly the business

parts of a code framed to meet the conditions of an era now out of date.

The doctor must realize that life today is very different from that of centuries ago, or of even fifty years ago in the United States. The public has an interest in the health of all its members, which did not formerly exist. A modern society is marked by interdependence of each group upon others, and an adequate organization must be set up to act upon this mutual dependence of producers and consumers of either business or professional services.

If medical service is to reach all the people, two principles must be accepted. There must be organization in medicine as in all other fields and the public must be informed, by advertising if necessary, of proper facilities for medical care. When Pasteur and Koch showed once for all the contagious character of many diseases, they demonstrated that each individual has a personal interest in the health of all.

Dr. Ray Lyman Wilbur, Secretary of the Interior, and a former president of the American Medical Association, has remarked that the time had gone by when the doctor could carry all medical knowledge in his head and all his equipment in his saddle-bag. He added: "The saddle-bag age of medicine has passed, but saddle-bag thinking on the part of the profession and the public is still with us."

PRACTICE ALREADY ORGANIZED

There is no use in saying that medical practice should not be organized. It already is organized. The progress of corporate action in medicine during the past fifty years is as striking as that in any other phase of life.

Medical education has changed from the old individual apprentice method to highly organized schools with large faculties and supported by huge sums from taxes and from private endowment.

Public health agencies in cities and counties are another striking instance of organization in medical care. We take our health agencies so much for granted these days that we often forget how new, how radical—even how socialistic—they are. They represent the State in the active practice of medicine for the prevention of disease and the protection of the health of the citizens. These State-controlled health agencies seem a violation of the old-time customs of the medical profession. They have been demanded by the people for their own protection. A proof that the public is right in demanding this sort of public medicine is that sickness has been greatly reduced and that the death rate has been cut in half in England, Germany and the United States during the past forty years.

The same kind of organization which has taken place in education and public health has shown itself also, in medical practice, where corporations in the form of hospitals and clinics have grown

rapidly. During the past fifty years, while the population of the United States has grown less than twofold, hospitals have increased fortyfold—from 150 a century ago to more than 7,000 today. During the same period hospital beds have increased from 35,000 to 860,000.

Clinics for treating patients who are able to be up and about have spread still more rapidly in one-half the time. At the end of the last century there were in the United States 150 of these out-patient services, whereas today there are more than 6,000, and the number of sick people who attend these clinics had grown in the same thirty years from 250,000 to more than 6,000,000. More than 60 per cent of all the physicians in this country are connected with hospitals, and wherever good hospital facilities exist the best physicians are associated with them.

The investment in hospitals in the United States is today \$4,000,000,000 and the annual expenditure is more than \$600,000,000.

But until recently America's billions of dollars of investment in hospitals and clinics almost entirely ignored the man of moderate means. Since he is no longer attached to the soil nor has fixed homes in cities, he has generally lost touch with the former family physician. When suddenly confronted with sickness he is often utterly at sea as to where to turn for advice and care.

FROM ONE DOCTOR TO ANOTHER

Some of these people fall into the hands of quacks. Others apply to a specialist and are referred from one regional physician to another and, after losing an appendix, a tonsil or two, some teeth and probably several hundred dollars, go on as much at sea as ever as to what to do when illness next visits them.

Hospitals and clinics, if they are to serve modern life in America, must shift their emphasis from charity to facilities for the man of moderate means. This middle-class man does not want charity. He wants good service so organized as to be had at moderate rates within his purse. Happily progress to this end is being made. A number of clinics have proved that it is possible to give excellent service at low cost.

The Mayo Clinic in Rochester, Minn., is the classic example in this country of highest quality in medical service available to patients of all classes with charges regulated to fit the capacity of each. Because of the distinguished position of William and Charles Mayo and their associates, even the bitterest critics of organization in medicine have found it convenient to omit this clinic from their attacks on such services. Many other groups of physicians now offer joint service after the model of the Mayos. There are said to be more than two hundred such group clinics now in this country.

The Cornell Pay Clinic in New York it set up exclusively for patients of moderate means. In

this clinic an excellent medical staff gave treatment to more than twenty thousand patients in 1927. There is no profit and no charity; service is rendered at cost and physicians are paid for their service. The average cost in 1927 was \$2.29 per visit, including not only doctors' examinations and treatments, but also medicines, laboratory tests and X-ray work. These fees are low enough to be within the means of relatively poor persons.

COMPETENT CARE ASSURED

Even more important than the low fees is the fact that people in New York are coming to realize that here is a centre to which they may turn in case of illness with assurance of careful diagnosis and competent care. A similar service is now offered by the clinics of the University of Chicago. Because of the high standards of these university clinics, patients are being attracted not only from the Chicago area, but from many States throughout the Central West.

The Public Health Institute in Chicago is a pay clinic in the special field of venereal diseases. In the few years of its existence this clinic has given approximately 2,700,000 treatments. It has taken care of more than two thousand patients in one day.

This institute has been the subject of bitter attack by certain elements in the medical profession. It has been hampered in assembling a medical staff due to the action of the Chicago Medical Society in threatening expulsion from the society—and so from the American Medical Association—of any physician who affiliated himself with it. In fact, a urologist of national distinction has recently been expelled—with detonations heard throughout the country—simply for having a nominal connection with the clinic, as president of the Illinois Social Hygiene League, which receives funds for its charitable work from the surplus of the Public Health Institute.

Not only in out-patient departments, but also in in-patient service, the hospitals are beginning to give more attention to the middle-class patient. The semi-private rooms at moderate fees are a well recognized feature of many of the best hospitals. Just now a great step forward has been announced by one of the oldest and best-known hospitals in America—the Massachusetts General. A new building, the Baker Memorial, is to be devoted exclusively to middle-class patients.

Not only will room charges be low but, by voluntary act of the eminent medical staff of this hospital, the medical and surgical fees have been fixed on a definite schedule. These fees are to be collected, not by the doctor himself, but by the hospital—acting as his agent. And the hospital has the right, where it thinks best, to reduce the fee even below the moderate schedule without consulting the doctor.

Another phase of the cost of medical care to the patient of moderate means is beginning to re-

ceive attention. That is the distribution of his medical expenses. The hardship is not only that medical services are high, but that they hit the patient often in a climax of costs at a time when he is not expecting these expenses and has had no chance to prepare for them. Proposals of various forms of health insurance are being made to meet these terrific financial blows which from time to time suddenly beat upon the man of moderate means. Great progress in health insurance has been made in Europe.

This remarkable recent growth in organization of medical services brings up many controversial issues. The very newness and rapidity of the development is confusing to county medical societies and to hospital and clinic authorities.

These enterprises are only experiments, and after all are drops in the bucket in a nation of 120,000,000 persons among whom from 3,000,000 to 5,000,000 are afflicted with illness on an average every day of the year. But these experiments indicate that the forces of organization, which have swept the fields of education and amusement as well as of industry, are also moving in the field of health.

There is anxiety lest the practice of medicine be made commercial or mechanical, but when the man in the street looks at doctors he is not impressed that the highest ideals of the best man of the profession dominate its every member. He sees that there may be gains in the service rendered by the average physician through the supervision and stimulus of organization in medicine. He realizes that if the sick man becomes a cog in a machine and the doctor a mere employe, the heart of medical service will be gone.

CENTRES AS CORPORATIONS

But the man of moderate means is not impressed by attacks on the principle of organization of medicine and the so-called practice of medicine by corporations. He knows that the centres of the finest medical work are in the hospitals and clinics, which are corporations. The average man is beginning to have a suspicion that many of the doctors who oppose what they call unfair competition of hospitals and clinics are men who do not succeed very well when they have a chance to work in these institutions. The average man realizes that a doctor carries the responsibility of life and death, that he is licensed by the public to practice medicine only after a long and costly period of training and that he is entitled to ample remuneration, sufficient to enable a professional man and his family to live on a high American standard.

Nobody wants good medical service more than the man of moderate means. No group in the community will be more ready to support physicians

so long as their ethical codes and their organizations fight for good professional standards, but if professional codes are directed toward maintaining business practices which were part of the day of the hand cobbler and ox-cart and to opposing practices which are in line with the main tendencies of modern life, the public will not give support and the doctors will have a hard road to travel.

The growth of organization in medicine raises anew the old problem of spreading medical information among the people. The American public is more and more interested in health and is ready to spend its wealth for it. Despite the fact that formerly prevalent diseases like typhoid and small-pox have been almost wiped out, that tuberculosis, malaria, diphtheria and many diseases of infancy have been vastly reduced, more medical service is demanded than ever before, and more preventive medicine.

As the people have become convinced of the power of medical science to cure, control or prevent disease, they want the knowledge of medical resources to be more and more widespread. This is particularly true of diseases which are contagious and dangerous to the whole public. Public education, through publicity and advertising, has been one of the cornerstones of the modern movement for public health.

Certain medical journals have accused newspapers of taking an interest in the public aspects of medical service because of the hope of getting paid advertising that might result from a policy of public announcement. This seems cheap and utterly unjustified abuse. Good newspapers have voluntarily given up hundreds of thousands of dollars of advertising from quacks and vendors of nostrums. If newspapers were governed solely by commercial motives they could easily get \$100,000 from quacks for every \$1,000 that they might receive from announcements of clinics and health services.

Further provision for the man of moderate means is largely a question of organization. This will not displace the doctor's work in the patient's home or in his private office, but it will stimulate and improve that and all other forms of medical service. Far too much attention is given today to charity service; far too little to working out in business-like fashion a scheme which will offer good service at low costs. Hospitals and clinics should cease to boast of the volume of their free care. They should take greater pride if all their services are so organized that each patient, even the low-wage earner, may be able to pay as he goes for what he gets. This is good democracy and sound economics. It will mean proper medical service for all the people.

CORRECTED ROLL OF COUNTY SOCIETIES

COUNTY	PRESIDENT	SECRETARY	MEETING DATE
Anderson	H. F. Stiltner, Windrock	J. S. Hall, Clinton	1st Mon., 2 P.M.
Bedford	John W. Sutton, Petersburg	W. H. Avery, Shelbyville	3rd Thurs., 2 P.M., Dr. Ray's office.
Benton	See Carroll County.		
Bloant	K. A. Bryant, Maryville	J. A. McCulloch, Maryville	Every Thurs., 8 P.M., First Natl. Bank Bldg.
Bradley	W. H. Sullivan, Cleveland	E. R. Ferguson, Cleveland	1st and 3rd Thurs., 7 P.M., Court House.
Campbell	J. W. Presley, Pioneer	F. A. McClintock, Newcomb	
Carroll		A. C. Elinor, McKenzie	Carroll, Weakley, Benton, Henry, 2nd Tues., Hotel Lynn, McKenzie.
Carter	J. L. Cottrell, Elizabethton	E. T. Pearson, Elizabethton	1st Mon., 7:30 P.M., First Natl. Bank Bldg.
Cheatham	W. S. Lockert, Ashland City	P. L. Pitt, Ashland City	
Chester		J. D. Anderson, Henderson	
Claiborne	See Hancock County.		
Clay	See Macon County.		
Cocke	A. L. Proffitt, Newport	J. E. Hampton, Newport	1st Tues.
Coffee	R. L. Dossett, Tullahoma	E. P. Vaughan, Manchester	1st Thurs.
Crockett	See Dyer County.		
Cumberland	E. W. Mitchell, Crossville	V. L. Lewis, Crossville	Cumberland, Overton, White, 3rd Thurs.
Davidson	J. O. Manier, Doctors' Bldg.	Sam P. Bailey, Doctors' Bldg.	Every Tues., 8 P.M., Doctors' Bldg.
Decatur		J. L. McMillan, Decaturville	
Dickson		R. P. Beasley, Dickson	
Dyer, Lake and Crockett	C. A. Turner, Dyersburg	E. H. Baird, Dyersburg	1st Wed., monthly.
Fayette		J. W. Morris, Somerville	Fayette-Hardeman, 1st Thurs.
Franklin	L. A. Templeton, Winchester	John P. Grisard, Winchester	Last Fri., 7 P.M., Court House.
Gibson	W. C. McRee, Trenton	George E. Spangler, Humboldt	
Giles	A. M. Allen, Buford	G. D. Butler, Pulaski	
Greene	L. E. Coolidge, Greeneville	M. A. Blanton, Mosheim	2nd Tues., 7 P.M.
Hamilton	J. H. Revington, Volunteer Bldg.	S. F. McIntosh, Volunteer Bldg.	Each Thurs., 8 P.M., Manufacturers' Association Bldg.
Hamblen	William E. Howell, Morristown	C. T. Carroll, Morristown	
Hancock, Claiborne, Union		I. N. Ford, New Tazewell	2nd Mon.
Hardeman	See Fayette County	J. Y. Alexander, Middleton	1st Tues. in Jan., April, July and October, Bclivar.
Hardin, Lawrence, Lewis, Perry, Wayne	J. T. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tues.
Hawkins		J. S. Lyons, Rogersville	
Haywood	J. M. Chambers, Brownsville	J. L. Edwards, Brownsville	Last Tues., 7 P.M.
Henderson		J. F. Goff, Lexington	
Henry	R. G. Fish, Paris	A. A. Oliver, Paris	(See Carroll County).
Hickman	C. V. Stephenson, Centerville	L. F. Prichard, Only	
Humphreys		W. W. Slayden, Waverly	
Jackson	J. D. Quarles, Whitleyville	L. R. Anderson, Gainesboro	1st Fri., Court House. (See Macon County.)
Jefferson		B. M. Tittsworth, Jefferson City	
Johnson	See Sullivan County.		
Knox	Ray DePue, West Church St.	Jesse C. Hill, 4323 Lyons View Pk.	Every Tues., 8 P.M., Medical Bldg.
Lake	See Dyer County.		
Lauderdale		W. V. Sanford, Ripley	2nd Thurs.
Lawrence	See Hardin County.		
Lewis	See Hardin County.		
Lincoln	D. T. Hardin, Fayetteville	J. V. McRady, Fayetteville	
Loudon	W. H. Harrison, Loudon	J. G. Eblen, Lenoir City	1st Thurs., Loudon; 3rd Thurs., Lenoir City, 7 P.M.
Macon	M. H. Allen, Lafayette	P. East, Lafayette	1st Wed., each quarter.
Madison	J. R. Thompson, Jackson	B. C. Arnold, Jackson	1st and 3rd Tues., 7:30 P.M., Y. M. C. A.
Marshall		J. A. Hardison, Lewisburg	4th Thurs.
Maury	Watt Yeiser, Columbia	W. K. Sheddin, Columbia	2nd Mon., 11 A.M., Elk Lodge Room.
Monroe	H. C. Shearer, Madisonville	H. M. Kelso, Madisonville	2nd Tues., Aug., Sweetwater.
Montgomery	C. N. Keatts, Clarksville	Bryce F. Runyon, Clarksville	3rd Thurs. night.
Morgan		J. F. Love, Lancing	
McMinn	J. R. Nankivell, Athens	C. O. Force, Athens	2nd Thurs., 2 P.M., Dr. Nankivell's office.
McNairy	R. M. Hendrick, Selmer	H. C. Sanders, Selmer	3rd Thurs.
Obion	C. B. A. Turner, Union City	F. B. Kinzey, Union City	
Overton	See Cumberland County	A. B. Qualls, Livingston	3rd Fri.
Perry	See Hardin County.		
Polk	C. W. Strauss, Copperhill	F. O. Geisler, Isabella	
Putnam	H. H. Taylor, Cookeville	C. P. Martin, Cookeville	1st Thurs., 1:30 P.M.
Roane	R. E. Regester, Rockwood	T. H. Phillips, Rockwood	1st and 3rd Tues., 1 P.M., Red Cross Rooms.
Robertson	J. S. Freeman, Springfield	W. F. Fyke, Springfield	3rd Tues.
Rutherford		J. A. Scott, Murfreesboro	
Sevier		C. S. Kinzer, Johnson City	1st Mon., 7:30 P.M., Central Hotel
Sullivan	T. B. Yancy, Kingsport	H. S. Smythe, Bristol	
Shelby	O. S. McCown, Bank of Com. Bldg.	A. F. Cooper, Bank of Com. Bldg.	1st and 3rd Tues., Medical Arts Bldg.
Smith	R. E. Key, Monoville	B. J. High, Elmwood	1st Fri.
Sumner	L. M. Woodson, Gallatin	John R. Parker, Gallatin	
Union	R. E. Stack, Erwin	J. R. Moody, Erwin	Every other Thurs.
Warren	See Hancock County.		
Washington	C. W. Friberg, Johnson City	John S. Harris, McMinnville	1st Wed., 1:30 P.M.
Wayne	See Hardin County.	Edward T. Brading, Johnson City	2nd Thurs. at noon, Hotel John Sevier.
Weakley	T. B. Wingo, Martin	J. E. Taylor, Dresden	3rd Wed., May, Aug., and Nov., at Martin. Also see Carroll County.
White	J. E. Mathis, Bearden	S. E. Gaines, Sparta	2nd Thurs., Dr. Gaines' office.
Williamson		K. S. Howlett, Franklin	See Cumberland County.
Wilson	R. L. Witherington, Lebanon	J. R. Bone, Lebanon	2nd Tues.
			Thurs. after 1st Wed., 2:00 P.M.

MEDICAL SOCIETIES

Robertson County—The Robertson County Medical Society met at Goodlettsville with Dr. and Mrs. S. J. Fentress. At noon an elegant dinner was served. In the afternoon the scientific program was held. Dr. R. W. Grizzard, Nashville, read a paper on the "Treatment of Fractures of the Upper Extremity." Dr. W. A. Bryan, Nashville, read a paper on "Fractures of the Lower Extremity."

The next meeting will be held in Orlinda, on August 20, at the home of Dr. and Mrs. G. R. Jones.

Members present were: Drs. Freeman, Rude, Moore, Fentress, Garner, Jones and Fyke. Visiting doctors, Drs. W. A. Bryan and R. W. Grizzard, Nashville, and Dr. W. L. Gossett, Adairville, Ky.

Giles County—The Giles County Medical Society met at Olivet Church, June 28. Thirty-three members were present.

Papers were given by Dr. J. W. Danley, Lawrenceburg, whose subject was "Acute Middle Ear Disease," and Dr. George Williamson, of Columbia, spoke on "Goitre." Dr. Buford White, Lewisburg, led the discussion.

Madison County—The Madison County Medical Society has adjourned for the summer. An interesting program is being mapped out for the fall and winter season.

On July 22nd, the Society was addressed by Dr. R. B. White.

Sullivan-Johnson Counties—The society met on July 5th, with the following program: "Acute Abdomen," Dr. N. H. Copenhaver; "Relation of Nasal Pathology to Asthma and Hay Fever," Dr. J. H. Hodge, Kingsport; "Rural Obstetrics," Dr. D. H. Keenor, Kingsport; "Public Health," Dr. E. L. Moore, Blountville.

Members present were: Drs. J. R. Butler, Mountain City; J. L. Campbell, C. M. Cowan, A. B. English, C. W. Fleener, A. J.

Kimmons, W. K. Vance and H. S. Smythe, Bristol; Aaron Cole, Piney Flats; Ira Gambill, Butler; J. C. Hutchinson, Crandall; S. R. McDowell and F. L. Moore, Blountville; W. B. Payne, W. H. Reed, T. B. Yancy and Thomas T. McNeer, of Kingsport.

Roane-Loudon-Monroe Counties—The Tri-County Medical Society composed of Roane, Loudon and Monroe counties, held its July meeting at Rockwood. Thirty-five members were present and several visitors from Knoxville.

The August meeting will be held at Sweetwater.

Blount County—Two hundred were present at a fish fry given by the Blount County Medical Society of July 11th. The proceeds of the meeting were given to the Mountain View Sanatorium.

Following the dinner a number of speeches were made.

Anderson County—The society had an open meeting at Clinton on July 1st. About forty persons were present. Lunch was served at the Park Hotel. The doctors' wives were taken through the Magnet Knitting Mills where each visitor received a pair of hose.

Those appearing on the scientific program were Drs. Herbert Acuff, H. E. Christenberry and W. T. DeSautelle, of Knoxville, and Dr. J. C. Ellis, of Lenoir City.

NEWS NOTES AND COMMENTS

The Southern Surgical Association will meet in Atlanta, on December 10-12th.

Dr. R. S. Smylie has recently moved from St. Louis to Memphis, to become the resident obstetrician at the General Hospital.

Dr. J. B. Naive, formerly at the Davidson County T. B. Hospital, has become superintendent of the Beverly Hills Sanatorium, at Knoxville. Dr. R. R. Crowe has been appointed to succeed Dr. Naive.

Dr. Avery Leeper has opened an office in Lenoir City and will practice with his father, Dr. J. T. Leeper.

News has been received to the effect that the American Orthopedic Society, meeting in London, named Dr. Willis C. Campbell, of Memphis, as its president.

Dr. O. H. Adkins has moved from Cumberland City to Erin.

Dr. J. Q. Owsley, Jr., is visiting his father, Dr. J. Q. Owsley, Sr., in Nashville, after a term of foreign service with the Asiatic Squadron. In the near future he will report to New York for a term in the naval hospital.

Dr. I. L. McGinnes has moved to Pikeville and will practice medicine there.

Dr. A. P. Harrison has relocated in Loudon after an absence of ten years.

Dr. Wm. Preas has located in Johnson City, practicing with his father, Dr. J. H. Preas.

Dr. L. C. Olin has opened an office in the First National Bank Building, Maryville.

Dr. W. S. Cooper is returning to Oneida after having practiced several months in Kentucky.

An Institute for Tuberculosis Workers will be conducted at Nashville, Tenn., September 10th through 24th, 1929, under the auspices of Vanderbilt University, in cooperation with the National Tuberculosis Association, the Southern Conference on Tuberculosis, the Tennessee Tuberculosis Association and the Tennessee State Department of Health.

This training course will be conducted by Philip P. Jacobs, Ph.D., Director, Publications and Extension Service of the National Tuberculosis Association. The committee on local arrangements and program includes James P. Kranz, Southern Confer-

ence on Tuberculosis, Dr. E. L. Bishop, Tennessee State Department of Health, Dr. W. S. Leathers, Vanderbilt University School of Medicine and S. L. Smith, Field Worker, of the Rosenwald Foundation.

The Institute has four main objectives: To assist workers already in executive positions in the tuberculosis field to assume positions of great responsibility or to become more useful in their present positions; to prepare for executive positions those who have not had experience in the tuberculosis field; to give to volunteer workers a more comprehensive knowledge of the administrative problems involved in this work; to aid in the standardization of methods and programs of tuberculosis work.

Application for the Institute and further information can be secured from James P. Kranz, of the Tennessee Tuberculosis Association, 405 Chamber of Commerce Building, Nashville, Tennessee.

The *Memphis News-Scimitar* of July 12th, contains the following editorial. We know nothing of the merits of the case but the last paragraphs are extremely reasonable:

A NEEDLESS EXPENSE

It is hard to understand why the University of Tennessee Medical College wants to open another eye, ear, nose and throat clinic.

It is well served by the Memphis Eye, Ear, Nose and Throat Hospital, one of the best-equipped institutions of the kind in the country.

The clinic there has been a tremendous success.

Perhaps it is true that another clinic in Lindsley Hall would be a trifle more handy for the students, but shouldn't the patient be given the first consideration?

A walk of two or three blocks certainly is not hard on students, who probably get too little outdoor exercise anyway.

It is going to cost the taxpayers of Memphis or the taxpayers of the state a lot of money to provide another clinic at Lindsley Hall.

Neither the city nor the state can afford to spend money needlessly.

ABSTRACTS OF CURRENT LITERATURE

ANESTHESIA

By Hugh Barr, M.D.

Medical Arts Bldg., Nashville

The Anesthetic Properties of Carbon Dioxid. Prof. Chauncey D. Leake, Ph.D., and Ralph M. Waters, M.D., Madison, Wis. *Current Researches in Anesthesia and Analgesia.* Jan.-Feb. 1929.

The authors in experimenting found that 30 to 50 per cent carbon dioxid with oxygen would anesthetize rabbits in about a minute without much excitement and little struggling. Muscular relaxation is marked. They recovered promptly and without any ill effects.

They observed twenty-eight dogs anesthetized by 30 to 40 per cent concentrations. Some of them 1 or 2 hours. In concentrations below 30 per cent caused great increase in blood pressure and convulsions. Between 30 and 40 per cent conditions were practically normal. Above 40 per cent there is depression of respiratory and cardiac functions.

In humans there appeared in a short time a marked rise in blood pressure and muscular twitchings and the procedure was not carried any further. Carbon dioxid increases the depth of breathing, causes the blood to become more coagulable and increases the osmotic resistance of the red blood cells.

Present knowledge does not justify carbon dioxid and oxygen in anesthesia in humans, except when administered for short periods in connection with other anesthetic agents to assist in anesthesia, or bringing the patient out of the influence of an anesthetic agent, to raise blood pressure or to make the blood more coagulable. It is definitely contra-indicated in hypertension.

DERMATOLOGY

By E. E. Brown, M.D.

Doctors Building, Nashville

The Treatment of Burns with Normal Horse Serum. Stephen R. Monteith and Ralph O. Clock, J.A.M.A., 92: 1173 (April 6), 1929.

A temporary dressing of antiseptic ointment is applied for one day. The part is then bathed in warm physiologic solution of sodium chloride. Normal horse serum containing 0.35 per cent cresol is then sprayed on and the burned area is kept moist with this. The preliminary bath with physiologic solution of sodium chloride facilitate removal of the devitalized tissue, and prevents absorption of toxic products. Cresol, an

antiseptic, prevents infection, and the horse serum coagulates the exuding tissue plasma with resultant proliferation of new healthy epidermal tissue. Five cases, with photographs, are reported in detail. Burns from any cause are treated in this manner.

Treatment of Senile Keratoses.

Everett S. Lain suggests (*Southern Medical Journal*, May, 1929): The first step is the careful removal of all soluble sebum surrounding and incorporated within the keratosis, with a small pledget of gauze or cotton moistened with sulphuric ether. Repeated brushings of the lesion with the gauze first one way and then the other; or, if necessary, a gentle scraping of its edges with a small skin curette, should be successful in removing the horny accumulation. If not, it will reduce it to a minimum thickness, thereby rendering it more penetrable to the solution.

As a second step, an application of a 20 per cent solution of salicylic acid in lysol is made with a small, tightly twisted cotton swab. One thorough and cautious application of this solution may be sufficient, though it may be repeated for two or three days in succession. The first sensation following its application is a slight stinging burning, increasing for a few minutes, then slowly subsiding after a period of thirty to forty minutes. The first appearance is that of a grayish-white cauterized patch which gradually changes in color, after several hours, to a yellowish-brown crust. This crust begins to exfoliate about the third day, and by the fifth or sixth day it has entirely disappeared or can be easily removed, leaving only a scarless, soft, smooth, normal area. If any of the keratosis remains, the former technique should be repeated.

INTERNAL MEDICINE

By R. B. Wood, M.D.

Medical Building, Knoxville

"Nephritis"

It has always been impossible to obtain a satisfactory classification of renal diseases because clinical cases and post mortem cases do not agree. In other words the clinical symptoms and the morphological changes do not always correspond.

In an attempt at uniformity Murphy (*The Syndromes of Chronic Nephritis and their Corresponding Morphological Changes, International Clinics—June, 1929*) divides all the varieties of Chronic Nephritis into five syndromes. Namely: (a) Urinary syndrome, (b) nitrogen retention syndrome, (c) hypertension syndrome, (d) the oedema syndrome, and (e) the uraemic syndrome. This permits any patient to have any one syndrome, all or any combination of the five. Again one syndrome or another may predominate the picture, fade away to return no more. It thus

becomes necessary for the physician to know what has transpired in a given case to intelligently recognize and treat the present condition.

The urinary syndrome is the most constant and the earliest to appear and is made up of the pathological changes in the urine, as changes in amount, specific gravity, presence of albumin, blood, casts and lipid bodies. The inability of a kidney to concentrate is the earliest sign of renal insufficiency. Albumin may or may not mean Nephritis and may be differentiated from the albumin of congestive heart failure by the presence of doubly refracting bodies on polariscopic examination.

The nitrogen retention syndrome is said to be present when the non-protein nitrogen remains above 60 mg. per cent. It must be borne in mind, however, that other processes may elevate the nitrogen retention, and attention must always be given the other syndromes particularly the urinary.

The nitrogen retention curve is a valuable prognostic aid as well as giving clues for therapy. High readings do not necessarily mean uremia is approaching for this may occur with no particular elevation. Some of the symptoms found at times in this syndrome are nausea, vomiting, pain, diarrhea, dyspnoea, mental derangements, purpura, pruritus and epistaxis.

Hypertension syndrome is found always in diffuse glomerulonephritis. It may be present when all other syndromes have subsided or it may be absent when others are fully developed.

Primary hypertension is associated with sclerosis of the renal arterioles in 90 per cent of cases and may be benign or malignant. The former may be given no inconvenience or may be discovered through the development of headache, lack of endurance, failure of memory or dizziness. As a rule heart failure, cerebral hemorrhage or renal failure will terminate the scene in the proportion of fifty, forty and ten. The heart is greatly hypertrophied.

Malignant hypertension, according to Volhard and Fahr, applies to those cases developing renal insufficiency in the course of primary hypertension and comprises 10 per cent of cases, with the patients dying in true uremia.

The oedema syndrome is the least constant, perhaps the first to appear to later disappear never to return. It is more constant in lipid nephrosis or degeneration of tubules and is not always amenable to treatment but may disappear with or without it.

The uremia syndrome occurs in most types of renal disease and may belong to the dyspnoeic, gastro-intestinal, typhoid, comatose or the convulsive types. The cause is unknown but probably related to nitrogen retention. Besides the true type there may be another in which there is no retention of nitrogenous products. The cause is unknown but supposed to be due to a

pressure edema of the brain, or anemia due to vascular spasm. The prognosis in this type is much better and these cases are seen in glomerulonephritis in lipid nephrosis.

The older classification of nephritis has been changed to one based chiefly upon changes in the tubules glomeruli and smaller vessels resulting in three groups: (1) Nephrosis, (2) glomerulonephritis, and (3) renal arteriosclerosis.

Nephrosis was a term coined by Müller to separate degenerative from inflammatory lesions of the kidney. Like many others the pathologists have objected to this classification claiming the degeneration in the tubules is a form of inflammation.

A true nephrosis is not accompanied by inflammatory changes in the glomeruli and may be classed as albuminous, fatty, hyalin, amyloid, lipid and necrotic forms. The lipid is more commonly seen and is characterized by the presence in the urine of lipoids in the tubular epithelium. Clinically there is edema with an absence of hypertension and nitrogen retention. Albumin is present in heavy amounts, but blood pus cells and casts are very few. Hypercholesterolaemia and a decrease of blood proteins with an inversion of the albumin globulin ratio is present but there is no relation between cholesterol and edema.

Glomerulonephritis may be divided into two classes, the diffuse and the focal depending on the number of glomeruli affected. The rate of the development of the nephritis determines the appearance of the kidney on post-mortem. The rapid resulting in the large mottled or normal sized organ, while the secondary contracted kidney is the result of long continued infection.

The diffuse type of kidney may or may not show lipid degeneration of the tubule though the tubules are always involved in the inflammation. Clinically there is found the urinary, nitrogen retention, the hypertension and the uremia syndromes. If lipid degeneration is present edema is present in addition.

Focal glomerulonephritis may be embolic in form or non-embolic in which the cause is never determined. In the former type none of the syndromes of Nephritis except the urinary appear. Urinalysis reveals albuminuria, red blood cells, pus cells and no casts. No renal insufficiency develops.

Renal arteriosclerosis, also called diffuse arteriosclerosis, arterio-capillary fibrosis and diffuse hyperplastic sclerosis. The older writers termed this condition the primary contracted kidney and the red granular kidney. It is the anatomical expression for the condition known clinically as primary hypertension and may be with or without renal failure. In the latter sufficient glomerular destruction has taken place to induce failure.

Clinically patients in the former group exhibit the hypertensive syndrome with enlarged hearts

and the latter present the urinary, hypertension, nitrogen, retention, uraemic and frequently the edema syndrome.

NEUROLOGY and PSYCHIATRY

By H. J. Hayes, M.D.

899 Madison Ave., Memphis

The Use and Abuse of Iodized Oil in the Diagnosis of Lesions of the Spinal Cord. Winchell McK. Craig, M.D., F.A.C.S., Rochester, Minn. *Section on Neurologic Surgery, The Mayo Clinic.*

Craig concludes as follows:

Iodized oil injected into the subarachnoid space is an invaluable adjunct in the armamentarium of the neurologist and the neurologic surgeon in diagnosing compression of the spinal cord but it has its use and abuse. This diagnostic procedure should always be employed in conjunction with a complete examination and the results obtained should never occupy more than relative importance in the establishment of a diagnosis; the irritative action on the meninges contraindicates its use in frank inflammatory lesions. By the use of iodized oil, the presence of tumor of the spinal cord can be detected earlier in certain cases, and the fact that there is a response to jugular pressure does not preclude its use. The outstanding use of lipoidol is for the confirmation of a suspected tumor of the spinal cord and its greatest abuse is its employment in case in which a complete examination would have established a diagnosis.

OPHTHALMOLOGY

By Robert J. Warner, M.D.

Doctors Building, Nashville

Heterochromia Iridis with Cyclitis and Cataract. Harry S. Gradle, M.D., Chicago. *American Journal of Ophthalmology, July, 1929.*

After a discussion of the literature of heterochromia iridis, both congenital and acquired, ten personal cases of heterochromia due to anterior uveitis are described. The condition known as heterochromia iridis with cyclitis and cataract is a definite clinical entity, probably due to a mild form of glandular tuberculosis, but which would be more correctly named heterochromia iridis with anterior uveitis and cataract. In these cases the decoloration of the iris is to be regarded as the sequel and not the precursor of the uveitis. Favorable results follow long continued use of tuberculin.

Defects in Ophthalmologic Training. Emory Hill, M.D., F.A.C.S., Richmond, Va., *American Journal of Ophthalmology, July, 1929.*

While it is legitimate to combine ophthalmology with otolaryngology, the former should not be a

mere appendage to the latter. Perhaps the chief defect of preparation in ophthalmology is inadequate training in refraction, although refraction with the internist and with other special majority of those who consult ophthalmologists. Among other aspects of ophthalmologic practice which do not always receive the attention they deserve are the ever increasing need for cooperation with the internist and with other special branches of medicine; and neurologic ophthalmology. Ophthalmologists in this country should avail themselves increasingly of the excellent post-graduate courses provided in various cities of the United States.

PEDIATRICS

By John M. Lee, M.D.

Doctors Building, Nashville

The Treatment of Headache in Children. R. C. Lightwood, M.D., *Lancet, April 14, 1928.*

Headaches in the young, especially in infants, are comparatively uncommon. Cephalic pain, which may be taken to include headache and earache, causes young infants to put their hands to their heads, scratching them and rubbing them at times; it also causes wrinkling of the forehead, crying and restlessness. Earache is by far the commonest cause of screaming and of putting the hands up to the head; it is especially frequent in association with teething. True headache may occur in infants and is often a sign of an organic disease of the brain, such as meningitis, intracranial tumor or hydrocephalus. The persistent crying of syphilitic infants has been ascribed to meningo-encephalitis. Eye strain is the commonest single cause of headaches lasting more than a few days. It seldom occurs before 5 years of age. The headache of ametropia is commonest after school hours, while toxic headaches occur mostly in the morning.

Toxic headaches may result from infections. Fever of less than 104 rarely causes this symptom and if it should do so, tuberculous meningitis should be suspected. Toxic headaches from an acute infection may be relieved with acetylsalicylic acid, 5 grains every 4 hours in a child from 5 to 10 years of age. Morning headache may result from a prolonged digestive disturbance. Such children are usually below the age of 7 years, have furred tongues, foul breath, impaired appetite, constipation and distended abdomens. Dietetic errors should be corrected. Drugs are of secondary importance in these cases. The digestive disturbance may be due to respiratory infections such as, chronically infected tonsils and adenoids, the secretions from which are swallowed.

Headaches due to juvenile rheumatism occur after 6 years of age, and usually in the early part of the day. Migraine, while uncommon, may be seen in late childhood, and may be accompanied

by pyrexia. For recurrent bilious attacks accompanied by headache and due to acetoneuria, dextrose is an efficient remedy. For young children, a teaspoonful of commercial dextrose three times a day should be used. Persistent headache is found in a certain small group of children with obesity; it is also a feature of dystrophia adiposogenitalis and is often complained of by girls at the age when menstruation commences. Endocrine therapy, analgesics and bromides may be all used in treatment. Headache occurs in about 50 per cent of all cases requiring operation for adenoids. Septic tonsils, dental caries, uremia, nephritis, anemia, trauma, lead poisoning, juvenile paresis and hysteria may all produce this symptom. Sinusitis is an exceptional cause in childhood.—Petersen, Amer. Jour. Dis. Children.

SURGERY — GENERAL AND ABDOMINAL

By John L. Dies, M.D.

1213 Exchange Building, Memphis

Treatment of Experimental Acute General Peritonitis in the Dog With Ileostomy and Sodium Chloride Solution. Orr, Thomas G. and Haden, Russell L. *The Journal of Experimental Medicine*, 49: 525-530, April, 1929.

Enterostomy as an aid in the treatment of peritonitis has attracted the attention of many clinicians in recent years. Since reports of its value have been somewhat conflicting we have made a study of the treatment of peritonitis by ileostomy from the experimental standpoint. The blood chemistry has also been studied in this series of experiments. In addition to the treatment of general peritonitis with ileostomy a small series of dogs has been treated with both ileostomy and 1 per cent salt solution.

In order to produce a general peritonitis, the appendix was freed at its base and snugly ligated with tape. Any animal developing complications was discarded. Autopsy was done in every case to determine the extent of peritoneal involvement. More than 50 per cent of the dogs developed a localized abscess at the site of the appendix or got well. Only those having a definite general peritonitis are recorded here.

In the first series, which included nine animals, the length of life varied from 2 to 6 days with an average of 3 1/9 days. In a previous study of eight animals with general peritonitis without drainage of the ileum the average length of life was 4 1/8 days.

The changes in the chemistry of the blood were in all cases similar to those previously found in general peritonitis, showing an increase in the non-protein and urea nitrogen, a decrease in the chloride and no constant change in the carbon dioxide combining power.

The second series of animals with ligated ap-

pendix and ileostomy was treated early with 40 c.c. of 1 per cent sodium chloride solution per kilo of body weight. These dogs lived from 4 to 18 days or an average of 10 1/3 days. With the administration of salt solution, the changes in the chemistry of the blood were not marked. In some cases there was a terminal rise in the non-protein and urea nitrogen and in one case, living 18 days, a definite rise in the chloride. The carbon dioxide-combining power showed no constant change.

In this study of general peritonitis with ileostomy from the beginning, no beneficial results are noted. Life is not prolonged by this method of treatment nor are the typical changes in the blood chemistry noted in experimental general peritonitis prevented.

The animals treated with 1 per cent solution of sodium chloride hypodermically in addition to ileostomy lived three times as long as those having no salt solution. The administration of the sodium chloride solution was quite effective in preventing the chemical changes in the blood noted in animals without such treatment.

The Journal of The American Association. Volume 93, No. 3. July, 1929. Pp. 179-182. Poyl-arthritis.

Further Studies on The Effects of Sympathetic Ganglionectomy and Ramisectomy. Leonard G. Rowntree, M.D., and Alfred W. Adson, M.D., Rochester.

The results observed in the case reported following sympathetic ganglionectomy and ramisectomy reveal the fact that in certain types of arthritis the sympathetic nervous system of the extremities is hyperactive, producing a marked vasomotor disturbance and profuse sweating, and possibly contributing to the spasm and atrophy of the muscles with the resultant deformities. The clinical picture is characterized by coldness of the extremities, marked sweating, tender, painful and swollen joints, and trophic changes in the muscles, skin and nails. In the author's case, all of these abnormal manifestations disappeared on release of the extremities from sympathetic control. The relief in the lower extremities was complete, lasting over a period of almost three years. Similar results were obtained in both hands following cervicothoracic sympathetic ganglionectomy, but there are still some slight residual manifestations of arthritis, slight pain and limitation of motion in both wrists. The lapse of further time and more cases are essential, of course, to a final evaluation of the effects of sympathetic ganglionectomy in this form of arthritis. But to date the results, both objective and subjective, have been astonishing in this case. Speculation concerning the mechanism of recovery is purposely omitted at this time. In the type of arthritis associated with marked bony changes, sympathetic

ganglionectomy may be of little, if any, value; but in view of our obvious ignorance of the role of the sympathetic nerves in arthritis, its potentialities, even in this field, should be determined. In determining the value and limitations of sympathetic ganglionectomy in arthritis, the intelligent selection of cases obviously is a factor that is of paramount importance.

UROLOGY

By Tom R. Barry, M.D., F.A.C.S.,
and F. K. Garvey, M.D.
Medical Building, Knoxville

"Surgical Lesions of Upper Urinary Tract."

Hunt, V. C., M.D. (Northwestern Medical Journal, May, 1928).

He reports that of 1,550 cases in the urinary tract, 87 per cent of which were for renal disease, 67 per cent required nephrectomy.

Malignancy comprised 13.8 per cent of renal lesions. The mortality in these malignant cases was 7.8 per cent. There was a mortality of 8.4 per cent in hypernephroma cases as against 6 per cent for carcinoma, epithelioma and sarcoma.

Lithiasis comprised 49 per cent of renal lesions requiring surgery. Nephrectomy was necessary in 1/3 of these cases.

He again stresses the need of fluoroscopy at operating table, especially in the kidneys with multiple stones. He states that the incidence of true recurrence will not exceed 5 per cent.

Infections were responsible for 57 per cent of renal cases requiring nephrectomy, of which tuberculosis comprised 48 per cent of cases.

The operative mortality in latter cases was 2 per cent with at least 60 per cent chance of complete cure. Persistence of symptoms was present in 20 per cent in variable degrees.

"Tuberculosis of Genital Tract." Bumpus, H. C., M.D. & Thompson, G. J., M.D., (Mayo Clinic, Vol. XX, 1928, Pp. 379).

Three hundred cases observed at Mayo Clinic are reported.

The diagnosis is not always an easy matter.

In 75 cases dysuria was present and in all but 7 of these, renal tuberculosis was demonstrated. They conclude that dysuria is strong presumptive evidence that the kidneys are also involved.

In 112 of 175 cases operated and verified by biopsy, there was no sign of tuberculosis of other organs. In the remaining cases there was evidence of pulmonary involvement in 36, renal in 33, and of bone and joint involvement in 19, lymphatics in 8 giving a total of 58 per cent of associated tuberculous lesions.

The prostate was involved in 52 per cent.

History of previous epididymectomy, orchidectomy, or the presence of a scrotal sinus points strongly to tuberculosis. The sinus from gumma is usually anterior, while that of tuberculosis are posterior. 108 of this series had discharging sinuses.

They believe that the process is primary in the epididymes rather than in prostate or vesicles and quote evidence of their contention.

They state that renal involvement is present in 36 per cent, whether the disease be bilateral or unilateral in epididymus.

Tubercle bacilli were found in urine in 64 of 293 urines examined. They conclude that if it is present in urine, renal tuberculosis is nearly always present.

Thirty-nine per cent of their operated cases developed tuberculosis in remaining epidid. 82 per cent of these occurred in first year. They conclude that epididymectomy does not tend to lessen the incidence of involvement of opposite side. Sinus formation may be present for 2 years following operation.

In their series only 56 per cent were alive after 5 years. Ten per cent died from tuberculosis of the genito-urinary tract. 8.6 per cent died of pulmonary tuberculosis, 4 died from other forms of tuberculosis making a total of 21 per cent dying of some form of tuberculosis. Atrophy of the operated testicle occurred in about 60 per cent cases.

In conclusion they state that surgery offers best chance of cure and that heliotherapy should be considered as an alternative to surgery.

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SURGERY OF THE BILIARY TRACT*

L. W. EDWARDS, M.D., Nashville

SURGERY of the biliary tract has for its object the cure of pathological conditions that exist in the gall bladder and associated organs, and the prevention of secondary disease in distant organs, especially the heart and kidneys, which if involved to a great extent will prevent the reclamation and return of the patient to health. To understand the pathology that exists as a result of infection to the gall bladder, it is necessary to have a clear conception of the relation of the gall bladder and ducts to the liver and pancreas.

The excretory ducts of the liver begin within the hepatic lobules as minute channels running between the hepatic cells and known as bile canaliculi. Outside the lobules these join the interlobular ducts which by uniting finally end in two or more ducts, which unite immediately after leaving the liver to form the hepatic duct. The gall bladder is a diverticulum of the upper end of the cystic duct.

The lymphatics of the gall bladder are intimately connected with the liver. The cystic artery from the hepatic supplies the bladder and the veins empty into the portal stream, passing immediately into the liver. If infections remained confined to the gall bladder it would be a simple disease to deal with surgically, but unfortunately such a condition rarely exists. On the other hand

the liver ducts and pancreas are soon involved in the process.

Therefore, in gall bladder surgery one is faced with the problem of dealing with a chain of organs intimately linked together and in the later stages of the disease many cases show changes in the heart and kidneys. Toxins from gall bladder infection have a special predilection for the myocardium.

The pathology of cholecystitis as presented by Whipple depends upon one or all of three conditions. First, a disturbance of cholesterol metabolism resulting in cholesterol deposits in the mucosa of the gall bladder; second, infection; third, bile stasis. Gall stones are found in diseased gall bladders in perhaps 50 per cent of the cases but apparently depend on hypercholestermia in association with infection of the tract and stasis. In most cases gall stones occur secondary to infections and stasis and for this reason should be disregarded in an attempt to diagnose infections of the gall bladder earlier. Statistics at the Mayo Clinic show that where gall stones are present at operation, symptoms had existed some years longer than the cases that did not have stones. The point I want to make is, that the term "gall stone disease" should be discarded; we should not wait for the typical symptoms produced by stones, such as jaundice, the severe colics, etc, but surgery should be done before these complications exist.

Infections may reach the gall bladder,

*Read before the Tennessee State Medical Association, Jackson, April 10, 1929.

first, by the portal stream to the liver, where bacteria get into the bile capillaries and are carried by the bile stream into the duct to be excreted into the duodenum or lodged in the gall bladder. Infection may pass by the lymphatics of the liver into the gall bladder wall. Graham has stressed this route and believes that infection in the majority of cases of the gall bladder is secondary to the liver. Another route is by way of the hepatic artery. Rosenow several years ago called attention to the hemaetogenous infections of the gall bladder secondary to infected teeth and tonsils. He showed that streptococci isolated from cases of cholecystitis have an affinity for the gall bladder when injected intravenously in animals. Third, retrograde lymphatic infection from the appendix, colon or duodenum. Fourth, an ascending infection of the bile from the duodenum, this is doubtful because in the majority of cases, the bile in the gall bladder is sterile. Whereas, the wall of the bladder seems to be the seat of infection.

A. L. Wilkie, working in Prof. D. T. D. Wilkie's clinic in Edinburg, has produced strong evidence in favor of the blood stream route. He also found that some form of the streptococcus was the organism most commonly found, he cultured the cystic gland which drains the entire sub-mucous and outer coats of the gall bladder and found streptococci in 43 cases out of 50. One case *B. Coli* was present, in one case, *B. Welchii*, and in only five cases did the culture prove sterile. From these cultures he injected animals intravenously and produced cholecystitis in practically every case, even when he occluded the cystic duct and stopped the flow of bile into the gall bladder.

Cholecystitis occurs in acute and chronic forms. Apparently it is twice as common in women as in men. In a series of 903 cases reported by Deaver in 1926, 67 per cent were female, 33 per cent were male patients—about 50 per cent of these cases contained stones. He reported 51 of the calculous cases and 32 of the non-calculous showing involvement of the liver and pancreas. More cases would show some degree of liver in-

volvement if the routine microscopic section of the liver was made in every case.

If the pathology of diseases of the biliary tract is understood and used as a basis for the analysis of the diseased manifestations, the symptomology becomes reasonable and logical. Whipple divides the biliary tract into the bile-concentrating and bile-conducting portions, that is, the gall bladder with the ducts. The gall bladder is involved primarily by the infection and later the ducts may become infected.

The acute gall bladder is characterized by pain in the upper right abdomen sometimes radiating around the ribs under the shoulder blade, sometimes straight through to the back and at times into the left chest, and occasionally into the left side of the abdomen. The pain is associated with nausea and vomiting, there may be a sharp rise in temperature and some increase in the pulse rate. As a rule the leucocyte count is moderately increased. As soon as peritoneal irritation sets up, there is localized rigidity and tenderness just below the right costal arch. It is very rare that the gall bladder can be felt. The mass that one feels is usually an enlarged liver with perhaps some omentum and colon adhered to the gall bladder. Acute cases are sometimes ushered in with a chill and very high temperature. The conditions most commonly confused with acute cholecystitis are: first, a high lying appendix; second, an acute pleurisy or beginning pneumonia, an acute infection of the right kidney, perforated duodenum ulcer. A coronary thrombosis and some forms of angina may obscure the diagnosis. In acute appendicitis the pain does not radiate around the ribs to the scapula. The pain is not as severe and is referred to the umbilicus and lower abdomen. The leucocyte count is higher and temperature only moderately elevated. The acute chest infection can usually be differentiated in a few hours and perforating duodenum ulcer is ushered in with more shock, exaggerated pain, extreme rigidity of the abdomen and with a normal or sub-normal temperature, a careful history will usually clear up the diagnosis.

These acute attacks in the majority of

cases are exacerbation of a chronic cholecystitis, but when the disease does begin in the acute form, it passes into the chronic state because the gall bladder has not the power to rid itself of infection. Once the gall bladder is involved to any appreciable degree, it does not return to normal or regain its power of concentration of the bile.

The symptoms of chronic cholecystitis are varied and in many cases vague, if one will remember that most cases the diseased process is present before 40 years of age and that 50 per cent of the cases of so-called dyspepsia are due to cholecystitis, one will have less trouble in making the diagnosis. These cases are characterized by a type of indigestion that bears no definite relation to food intake. There is a sense of fulness and discomfort in the stomach after meals with belching of gas and many times an acid condition with "water-brash." The patient experiences cramping pain in the middle of the night, this pain can be differentiated as a rule from ulcer pain. Some cases present typical sallow, muddy complexion, but Jaundice is present at some time in about 20 per cent cases. Deaver points out that on examination a point of tenderness can usually be detected by deep palpation over the gall bladder with one finger on expiration following deep inspiration. Graham's method of cholecystography is of great help in working out the chronic gall bladder. It not only helps to portray the condition of the gall bladder, but is of advantage in getting a line on liver function. If the technique is properly carried out, one should diagnose his cases in 90 per cent. The dye may be given orally or intravenously. Personally, we prefer the oral route and have found this method very satisfactory. However, one should never let laboratory method take the place of a carefully taken history and a thorough physical examination.

In surgery of the gall bladder there is no argument nowadays between removing the gall bladder or draining it. Cholecystectomy is the operation of choice, because of the high percentage of cases with recurring symptoms from an infected shell that is left behind in cholecystostomy, which acts

as a distributing point for infection. In most of the acute cases, we have found cholecystectomy easier to do because adhesions are easily separated, a line of cleavage is gotten between the gall bladder and liver, and infection is not disseminated as much as by drainage. There are, of course, some cases especially in aged people with secondary involvement of the heart and kidneys and severe crippling of liver function where cholecystostomy should be done. It should be done, however, as a permanent operation for we have found that cholecystectomies following drainage carries a very high mortality. In these acute cases if cholecystectomy is contraindicated we tide them over until it is safe to do the complete operation. This of course applies to the cases without common duct obstruction. Davis of Omaha reports in the *Annals of Surgery*, 1928, a series of 160 cases of gall bladder operated. In this series there were six deaths or a mortality of 3.75 per cent—156 were ectomies and only 4 ostomies. Two of the deaths followed cholecystostomy. An analysis showed one death from peritonitis with an associated streptococcic throat, another from exhaustion of liver function—31 days after a drainage of common duct obstruction from pancreatitis. Another from hemorrhage of the cystic artery, a fourth a cardiac death, 13 days later; fifth, died from gangrene of the colon which the blood supply had been cut off; the sixth died of coronary thrombosis. Many of these cases were operated in the acute stage and bears our impression that general peritonitis is very rare following removal of the gall bladder.

The mortality rate in gall bladder operations has been greatly reduced within the past five years. Such clinics as Mayo, Whipple, Deaver, and others report from one to three per cent in the cases not complicated by obstruction, badly diseased liver, etc. Brooks recently reported a series of 800 cases with 2 per cent mortality. Haggard reports 345 gall bladder operations, exclusive of common duct obstruction, 4.04 per cent. A series of 88 cases done at St. Thomas Hospital in 1928 with 85 cholecystectomies and 3 cholecystostomies with

three deaths, one from cholecystostomy, two with cholecystectomy—one died a cardiac death, two from pneumonia.

These statistics point to the fact that we are operating many more gall bladders in the early stage than formerly.

One of the most important factors in reducing the mortality is the preoperative preparation of the patient and careful post-operative management. All gall bladder cases should spend from two to four days in the hospital before operation. Many of these cases are in a state of dehydration with a certain amount of sepsis, giving large amounts of saline solution, glucose solution, three to five per cent, both by bowel and orally, with rest in bed, digitalis in the cardiac cases will improve them 100 per cent. These cases should all be carefully examined for cardiac function, kidney function, and a routine Vandenberg test should be made to determine the amount of bile in the blood, for many cases will show some degree of jaundice, not detected by ordinary examination. Anesthesia, local to open the abdomen with gas given while the operation is actually being done is by far the anesthetic of choice. I have had no experience with spinal anesthesia but I believe it to be of advantage in some cases, especially where obstruction of the duct is present. Fluids from three to four thousands CC every 24 hours under the skin and by bowel should always be given following operation, and enough morphine to keep the patient comfortable. We make it a practice to give the patient moderate elevation on the back rest in a very few hours. Also instruct them to practice "deep breathing" exercises three times a day to prevent pulmonary complications.

We close very few cases without drainage, but this means only a small wick of gauze surrounded by rubber tissue. No doubt many cases could be closed but we prefer a wick drain for 24 hours. Good exposure, a thorough examination of the gall bladder, common duct, hepatic ducts, duodenum, colon and stomach are most important in cholecystectomy. Otherwise, one may not discover the anomalies that exist in the vessels and ducts and serious injury

may result, especially recurring symptoms following removal.

Surgery for common duct obstruction will be required in probably 6 per cent of the cases where gall stones are present. Lahey says "the diagnosis of common duct stone is in itself not as important as the realization that they may exist without symptom." He calls attention to the fact that if a careful search is made routinely in gall bladder operation, that many cases of stone will be found that were not suspected. The lack of careful examination of the common duct has accounted for many cases showing up later with obstructive symptoms. Judd has called attention to the fact that he believes that most of these cases represent failure to find stones rather than formation of new stones in the duct. McVicar and Counceler have shown that as a result of common duct obstruction there is marked dilatation of the biliary tree with damming back of bile which interferes with the function of the liver cells. A prolonged coagulation and bleeding time in jaundice due to the loss of calcium or rather the inability of the normal blood calcium to control bleeding. Walters found that in over 50 per cent of the cases dying from operation in common duct obstruction, there was severe hemorrhage from oozing, by giving calcium chloride intravenously for three days and if necessary blood transfusions, he has put common duct surgery on a comparatively safe basis.

Following removal of stone from the common duct, free drainage is important and the T tube with short limbs is by far the most satisfactory. The duct can be successfully closed around this tube, it should remain in for two weeks at which time no difficulty is experienced in its removal, the fistule promptly closes if the ducts free

In the obstruction cases with deep jaundice, one should thoroughly test the case out by estimation of bile in the blood serum to see if jaundice is increasing or decreasing. Most of these cases are not completely blocked and the attack will partially at least clear up, it is much safer to operate when the jaundice is decreasing. The liver function will be improved and the chances of

hemorrhage reduced. Cases of obstruction from pancreatitis should have cholecystostomy (internal drainage) if possible rather than external drainage.

The object I had in presenting this discussion was to call attention to the fact that gall bladder disease in the early stages is confined largely to the gall bladder—that sooner or later the ducts, liver and pancreas are involved, and in many cases to a serious degree. Second, it appears to us that Wilkie has done much to prove the theory of Rosenow and Billings that infections of the gall bladder occur from the blood stream more than any other route. Third, that gall bladder disease occurs at a much earlier age than we have been led to believe, and that early diagnosis and operation will do much to clear up the prejudice that has existed in the past against gall bladder operations. That gall stones should be considered, with rare exceptions, a late complication of cholecystitis. Fourth, that a complete survey of the patient's general condition should be made and thorough preparation made before surgery. That cholecystectomy is the operation of choice, except in old people with long neglected cases, dense adhesions, a badly crippled liver and heart or an obstruction with deep jaundice. In a small per cent of these cases it will be the part of wisdom to drain.

DISCUSSION

BERNARD GASTON, Lebanon: I feel that it is especially important to remember and to emphasize the importance of early operation in gall bladder disease, for the reason, as brought out by Dr. Edwards, of the degenerative changes that take place in distant organs, as the result of the toxemia in gall bladder disease. I feel that it is somewhat a reflection on the profession that the patient with chronic gall bladder trouble is allowed to go on an average of fifteen years before they come to surgery, during which time degenerative changes in the myocardium, the kidneys, and the liver itself are almost sure to occur. Many of these changes are permanent and will not be relieved by surgery, which has been so long delayed.

The two features of gall bladder surgery that have been productive of the most discussion in medical meetings, have been the question of what to do with the acutely inflamed gall bladder, and secondly the signs and evidence that indicate disease in the chronically diseased gall bladder. I

feel, in view of the fact that gall bladder infections in the acute stage have such a positive inclination to clear up spontaneously on anatomical and physiological rest, that this condition is not surgical unless the case goes on to the gangrenous or perforative stage of infection.

The history and the physical examination of the patient are of more importance than any of the laboratory aids that we have in diagnosis. Cholecystography is of most value in the doubtful cases where it is difficult to arrive at a definite conclusion, from the history and physical examination. It is certainly not necessary in arriving at a diagnosis in the average case of gall bladder disease, although the additional information gained by this procedure is comforting in any case.

I think Dr. Edwards had presented us a splendid paper which I enjoyed and wish to thank him for it.

DR. W. D. HAGGARD, Nashville: Mr. President, I think in explanation of the point brought out by Dr. Edwards and emphasized by Dr. Gaston, in reference to the longevity of the disease before being operated on is probably due to the fact a great many of these attacks occur when the patient is young.

Some eighteen years ago, we were struck by the fact that a large number of women were brought to the hospital with babes at their breast, with acute gall bladder colic. We had no Pediatric Department, and to take care of the babies was simply forced upon us, and since that time we have been careful, analyzing the history to say, "How old was your first baby at the breast, when you had your first attack of colic?" That question, put that way, will yield a surprising number of positive answers. If you ask the patient when the trouble first began, you are lost in the morass.

Attention has been called to that by a good many writers since, but so far as we knew, just forced upon us without anybody telling us.

The feature about Dr. Edwards' paper that I was pleased with was his reference to the utilization of a combined anesthesia—local and gas. The beauty about local anesthesia, even though you give the patient ether, you don't get the relaxation, by blocking the incoastal nerves you get great laxity, and then with the gas to atone it. The great beauty about it is relaxation.

The other feature that I briefly want to mention is the care of the obstructed patient with the common duct stone. You know full well it is a bad time to operate, you are doing the right thing at the wrong time, but after the preparation, Dr. Edwards described first by Wilkie, as he said, then the thing to do, if you are going to operate on the patient, don't take the stone out of the common duct. It is on the same principle that you do not take large prostate at the time of complete urinary obstruction. Open the bladder and drain. If you do the same thing to the gall bladder, you

will get by these desperate cases that used to yield such a terrific high mortality.

I want to show just a few slides that will illustrate some points that have been of interest to me, and these are just colored pictures of the different types of stones that you are very familiar with, and I am aware of the fact that gall stones are simply monuments to the preceding infection of the gall bladder wall, to the dead germs erected by the stones to the monument. (Slides.) (Applause.)

DR. L. W. EDWARDS: I appreciate the discussion of the paper.

In regard to the diagnosis of these cases, I don't believe we should let any laboratory methods take

the place of a thorough history and physical examination. Of course, the majority of cases, the symptomatology is more or less clear, but in routine work, we find many of these cases have to be differentiated from so many different conditions that I believe that the Graham method of visualization of gall bladder is very helpful.

The point I wanted to bring out was that many of these cases of chronic diseased gall bladder exist which have not heretofore been suspected.

In the actual operation it is important to get thorough relaxation. Personally, I have used local anesthetic combined with gas for several years.

Thank you. (Applause.)

Send in your application for space in the *Physicians' and Surgeons' Directory*. See editorial page in August issue for information.

THE TRAUMATIC KNEE WITH NEGATIVE ROENTGENOGRAMS*

ROBERT CRAWFORD ROBERTSON, M.Sc., M.D., Chattanooga

THE number of knee joints representing various degrees of disability is thought by many authors to be increasing. This is commonly attributed to the popularity of athletic sports, industrial occupation and compensation, and the frequency of automobile accidents. Whether this increase is apparent or real, it can be stated that our knowledge of such injuries has increased to the extent that favorable therapy can be applied in many cases which all too often are relegated to the group of permanent disabilities. Not until these knees are as carefully studied as the acute abdomen have we fulfilled our duty to the patient suffering with such disability. The belief that arthrotomy always results in a stiff joint, is not only widely held among the laity, but unfortunately persists in the minds of many of our profession. This belief must be dispelled, for such an outcome is most unusual when proper asepsis and technique have been followed.

This paper is presented with the hope that it may stimulate interest in, and careful study of, the underlying causes of disability of this joint. It will be limited to the injuries resulting from non-penetrating traumas, and the chief diagnostic points of the more common conditions found, which give no evidence of their presence on Roentgen examination. No mention can be made of therapy in the time at our disposal.

The knee is essentially a hinge joint between the femur, tibia and patella; flexion and extension being obtained by a combined gliding and rolling of the concave surfaces of the tibial tuberosities on the rounded ends of the femoral condyles. At the extremes of flexion and extension a slight rotation is superimposed. The patella—which is a sesamoid—moves freely in the intercondylar space. The capsule is strength-

ened anteriorly by the patella, the quadriceps and patellar tendons. Posteriorly it is thick and strong. To its sides, and slightly posteriorly, the lateral ligaments serve as additional strong reinforcements.

Exterior to the capsule are found the attachments of the powerful muscles of the thigh and leg. Many bursae are found in this region, some of which communicate directly with the joint.

Within the capsule are found the semilunar cartilages—whose central margins are free of attachment—the crucial ligaments, and the infrapatellar fat pad. The lining is synovial membrane, by which the synovia or joint fluid is secreted.

In extension the structures of the joint are tense, while in flexion the capsule and lateral ligaments are slightly relaxed. It is while in semiflexion that the joint is most susceptible to injury.

Routine Roentgen examination in all knee injuries cannot be too strongly urged. Both lateral and anterior-posterior views must be made, and in questionable cases the opposite knee must also be taken for comparison. The group of cases in which this examination is negative composes an interesting chapter in the surgery of this joint, as diagnosis is largely made on the history and physical findings, and in a high percentage the results of proper therapy are most gratifying.

The conditions to be discussed will be considered on an anatomical basis, passing from the more superficial to the deeper structures. It must constantly be borne in mind that the injury is rarely limited to one structure, and that all must be routinely subjected to careful examination before diagnosis is made.

The tendons closely associated with this joint are frequently injured; in degree varying from a strain—or stretching of the fibres—to a complete rupture. Most frequently strained and sprained are probably

*Prepared for the Tennessee State Medical Association, Jackson, April 11, 1929.

those of the semimembranosus, the semitendinosus and the patellar tendon. Diagnosis is made on the findings of pain on palpation over the tendinous insertion, and the fact that pain is intensified on further attempts to flex or to extend the joint against the contracted muscle. Joint effusion may be present in sprains of the patellar ligament. Periostitis at the site of insertion may develop in untreated cases. Most frequently ruptured is the tendon of the quadriceps, though this injury is quite uncommon. It is usually caused by attempts to extend the joint against heavy resistance. It is unaccompanied by hemorrhage into the joint unless the posterior portion of its sheath is injured, though serious effusion is common. Diagnosis is made on the history, inability to extend the knee, and pain at the site of injury. When examined before extensive effusion or hemorrhage into the sheath has occurred, a separation between the retracted ends of the tendon may frequently be palpated.

Fracture of the patella usually occurs before its tendon is ruptured.

Bursae about the knee are numerous and somewhat variable. Some communicate directly with the joint, in which case injury to the bursa is accompanied by effusion into the joint. They are the frequent cause of obscure periarticular conditions, especially in the popliteal region. Those of chief interest anteriorly are the prepatellar, suprapatellar, superficial and deep infrapatellar. Posteriorly, important bursa lie beneath the insertion of the biceps tendon, and between the inner head of the gastrocnemius and semimembranosus muscles.

Acute, non-suppurative bursitis is practically always traumatic in origin. The diagnosis is made by the presence of pain on pressure, accompanied at times by palpable enlargement of the bursa in question. In untreated cases the tendency is for the condition to become chronic. Enlargement of the deep infrapatellar bursa may cause the fat pad to be pressed into the joint space, giving rise to symptoms similar to those of cartilage injury.

Slipping patella sometimes follows an original traumatic dislocation, though it is

apparently due chiefly to a congenital maldevelopment. The dislocation is practically always outward, though the patient usually insists that it is inward because of the prominence of the internal femoral condyle. It usually occurs when the knee is in marked flexion, and is accompanied by severe pain, locking and complete disability until the dislocation is reduced. The patient soon learns to do this by extension of the joint, combined with inward pressure on the patella.

Differentiation between the locking due to recurrent dislocation of the patella and that of semilunar cartilage injury is often difficult. Effusion into the joint with fluctuation is usually present in both conditions, as is the tendency for this reaction to grow less marked with each recurrence. Generally, there is no pain on pressure over the semilunar cartilages in cases of slipping patella, while outward pressure on this bone combined with passive flexion of the knee, usually produces a sensation similar to that occurring at the time of locking when the patella is the causative agent. It gives rise to no such sensation in cases of semilunar injury.

Ligamentous injuries are common about the knee, varying in severity from strain to rupture. The internal lateral ligament is most commonly involved. The deep fibres of this structure extend from the inner femoral condyle to the medial tuberosity of the tibia, and are intimately connected with the capsule and the internal semilunar cartilage. It is these fibres which are most frequently injured, and tearing of the joint capsule and displacement or rupture of the internal semilunar cartilage are common complications. Synovitis with joint effusion is practically constant.

Injury to the external lateral ligament is relatively rare. Its fibres do not blend so intimately into the joint capsule, as in the case of the internal, nor do they attach to the external semilunar cartilage, so that conjoined cartilage injury is uncommon.

Forcible abduction or adduction with the joint partially flexed is the usual cause of injury to these structures.

On examination, in addition to the joint

effusion, an abnormal range of lateral mobility is found in case of rupture. When rupture has not occurred, this increased range of lateral mobility will be absent, but attempts to obtain it will cause pain over the course of, or at the attachment of the ligament in question, as will deep palpation at the same sites. While injury to these structures per se does not give rise to locking of the joint, accompanying semilunar injury is frequent, in which case a history of locking may be obtained.

The crucial ligaments not only limit anterior-posterior motion of the tibia on the femur, but also limit to a lesser extent lateral and rotary motion. When the lateral ligaments are severely stretched or torn a direct stress is placed upon the crucials.

Rupture of both crucial ligaments is caused only by severe trauma and is always associated with serious injury to the capsule and other ligaments, usually with dislocation of the joint. In such cases, after the dislocation is reduced, it is found that the tibia can be easily pushed forward and backward on the femur, with the joint in either flexion or extension.

Stretching or rupture of the anterior crucial is the most frequent of these injuries. Associated rupture or displacement of the internal semilunar cartilage, and avulsion of the internal tibial tubercle are not uncommon. When the injury has been produced by forcible hyperextension, tearing and stretching of the posterior capsule are associated.

The posterior crucial usually escapes injury, except in severe injuries with dislocation of the joint.

In injuries of the anterior crucial the joint can be hyperextended, and while in this position or in flexion the tibia can be brought forward on the femoral condyles. When the posterior is involved the tibia can be displaced backward. While it is the opinion of the author that injury to the crucial ligaments has been over-emphasized—as their removal in the course of arthroplasty appears to have few serious results—the simple tests to determine their integrity should be made in all knee injuries, especially if surgery is contemplated.

The infrapatellar fat pad, composed of fat and fibrous tissue, is held upward between the femoral condyles by the patellar ligament and the ligamentum mucosum. It acts as a buffer to protect the joint surfaces. As the result of injury it may be pushed backward so that its edges are impinged upon when the joint is extended. The joint may become painful on weight bearing, or extension may be slightly decreased, simulating semilunar injury. Synovitis with joint effusion is the rule. On examination, a firm swelling which is painful to pressure is found to both sides of the patellar ligament at joint level, and when bursitis is the underlying cause, the bursa beneath the patellar tendon is usually found to be enlarged, firm and tender to pressure. As this condition may be superimposed upon other surgical joint conditions whose symptoms overshadow those of injury to the fat pad, or as it may be the undiagnosed cause of the operative condition, it should always be carefully inspected when arthrotomy is performed.

The synovial membrane is rather complicated in its arrangement within the joint. With the exception of the articular portions of the femur, tibia, and patella, it is reflected over and covers the major portions of the intracapsular structures. Traumatic synovitis is the most common knee joint injury.

The history and findings are well known to all of us, namely—a slight trauma, following which the joint feels stiff and painful. Soon swelling appears, and as this increases, pain and limitation of motion become rapidly more marked. On examination the joint is usually held in semi-flexion to minimize tension on the capsule. The bony landmarks are obliterated, the entire joint is enlarged, tense, and warm to feel. Popliteal bulging and tension, proximal to the heads of the gastrocnemius are frequent. Attempts at flexion or extension increase the pain. Patellar tap and fluctuation are diagnostic.

Because of its intimate anatomical relationship, serous synovitis accompanies practically all joint injuries, and must be considered merely as a symptom of some

soft tissue or bony lesion until all question of the presence of such lesions has been eliminated. It is only after this has been done that we are justified in diagnosing cases presenting these symptoms as traumatic synovitis.

In prepatellar bursitis or housemaid's knee, the swelling and fluctuation are anterior to the patella, the lateral patellar depressions are not obliterated, slight joint motion is not painful, the suprapatellar bursa is not distended and patellar tap is absent.

Long continued, or repeated serous effusions may so stretch the capsule and ligaments that permanent instability of the joint will follow, while hemorrhagic effusions, if untreated, will produce fibrinous adhesions with resulting loss of motion. Stomata are not found in synovial membranes, which explains the slow absorption of joint exudates.

Displacement or rupture of the internal semilunar cartilage is the most frequent cause of sudden interference with motion of the knee joint. Injury to the external semilunar cartilage is relatively infrequent, constituting in the experience of Sir Robert Jones not more than eight per cent of cartilage injuries. This is explained by anatomical differences. The internal is closely attached to the internal lateral ligament which limits its motion, rendering escape difficult when it is pressed upon by the internal femoral condyle. The external cartilage is not attached to the external lateral ligament, is more loosely attached to the capsule, and as the result of this increased mobility can more readily escape injury. The anterior portion of these cartilages is most frequently injured. The injury is usually a longitudinal splitting, a transverse tearing, or a loosening of the anterior attachment.

This condition is most frequently found in active, young, adult males. The usual history is that while the knee was partially flexed, a trauma was received which placed a rotary strain on the internal lateral ligament. The patient frequently falls or is knocked to the ground, and on attempting to rise finds that he is unable to extend the

knee, and that all attempts to do so are exquisitely painful, while flexion causes no increase in symptoms. Frequently a companion applies traction to the extremity, and the joint is extended with a sudden "snap," and marked relief of pain. Effusion soon follows, and gradually subsides. The locking may recur in a short time as the result of a very slight injury. The initial locking is present in at least half of these cases, and practically all give a history of locking either at the time of the initial injury or at a subsequent time. In injury to the external cartilage the history is often vague. Locking may be present, but frequently only a "slipping" or "catching" to the outer side of the joint is mentioned.

Diagnosis is made on the history, and the finding of pain on pressure over the injured meniscus. Frequently the joint cannot be fully extended. Roentgen examination after inflating the joint with gas is a diagnostic method of promise, but is not generally accepted. It is at times difficult to differentiate between injury to the internal and the external cartilage. The nature of the causative trauma is of no aid, and symptoms of sprain of the internal lateral ligament may accompany injury to either meniscus. As a rule, however, in injury to the internal, the pain experienced at the time of locking and on examination is overlying the cartilage at joint level about one-half inch medial to the patellar tendon, while in injuries to the external these symptoms are usually found just anterior to the external lateral ligament. Examination should be made with the joint in flexion, and repeated in extension, to differentiate between injuries to the semilunar cartilages, and those of adjoining tissues.

Post-traumatic necrotic areas in the patellar and joint cartilages have occasionally been reported. Chondroblasts have no chondrogenetic power, and when injured, cartilage heals by fibrosis as does soft tissue. In these cases, pain is usually slight at first, but becomes more marked after continued weight bearing. Effusion into the joint occurs, and on palpation circumscribed painful areas may be found on the

articular surface of the femoral condyles. When the patella is involved, pressure and motion are often painful, and may be accompanied by crepitus.

The hysterical knee is occasionally seen, and usually presents a difficult problem in diagnosis. Often a history of minor trauma is present. The joint may be held in flexion or extension, and be rigid or flacid. Atrophy of adjoining muscles may be found. Hyperesthesia, anesthesia, or a mixture of both, may be the chief complaint.

Diagnosis can be made only by the elimination of all other joint conditions. The mental attitude of the patient; the position of the limb; absence of muscle atrophy; exquisite, shifting, superficial pain on

pressure; anesthesia which follows no definite nerve distribution; or absence of positive physical findings are a few of the conditions which may afford the first clew to the true condition. The subjective symptoms are always out of all proportion to the objective findings, and with suspicion once aroused, careful examination—possibly repeated—will eventually result in the discovery of some discrepancy which permits diagnosis.

Malingering must be diagnosed in exactly the same manner. In this condition the objective findings are usually grossly exaggerated in the patient's obvious desire to assist in the diagnosis of a serious disability.

THE CARE OF THE BREAST IN THE NURSING MOTHER*

MILTON SMITH LEWIS, M.D., Nashville

THE affections of the breast that occur during lactation play an important role in the prenatal and postnatal care of the expectant mother. It is a problem for both the obstetrician and pediatrician.

Many of the difficult problems that occur during the lactating period, for both the mother and child, can be avoided by intelligent and faithful care of the breast during the respective periods. Maternal nursing, therefore, should be encouraged and a proper routine should take the place of the customary indifferent management of the breast during pregnancy and the puerperium. In addition to the measures which aid in the realization of this aim we must include in our management of the breast every possible means of preventing infection, since the appearance of acute infection in the nursing breast is sufficiently frequent to receive careful attention; and the occasional termination of such an infection into a mammary abscess is an obstetrical calamity.

The preventive treatments may be discussed as prenatal care of the breasts, the

care of the breast when lactation begins, and the care during lactation.

Special care of the breasts and nipples during the prenatal period is usually not necessary. Daily washing of the nipples and areola with soap and water and protection against pressure is ordinarily sufficient. However, if the breasts secrete, crusting may be prevented by covering the nipples with sterile gauze and vaseline. During the last two months of pregnancy in addition to the daily cleansing of the nipples, they should be thoroughly dried and anointed with some lubricant, as sterile liquid petrolatum, vaseline, olive oil or cocoa butter. This will protect the nipples so that they will be less likely to crack when the baby nurses; but washing the nipples with alcohol, boric acid solutions, and various antiseptics cannot be recommended. Cracked and fissured nipples should be handled exactly as when they occur postpartum. One often observes early in pregnancy nipples that seem small or depressed or inverted. In the average case, as pregnancy advances, these characteristics disappear and they become normal everted nipples. This is not true, however, of depressions which appear late with structural changes, and unless treatment is instituted,

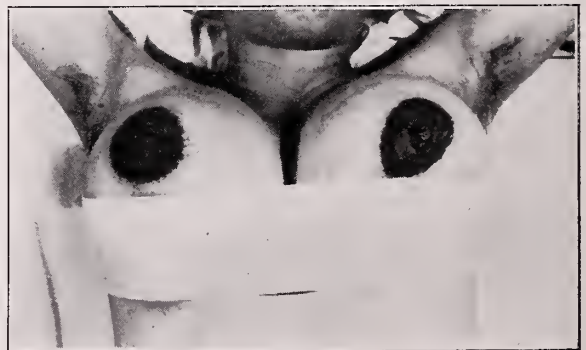
*Read before the Tennessee State Medical Association, Jackson, April 9, 1929.



No. 1.

Patient is placed in the reclining position with arms extended above the head in the same plane of the body.

An assistant holds the breasts in position by raising the breasts upward and toward the median line and away from the axillary spaces.



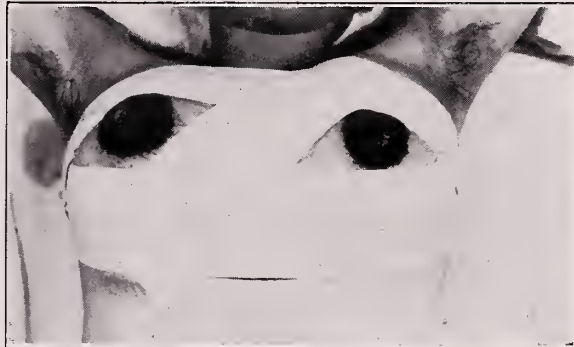
No. 2.

First strap is applied below the breasts, extending from the side opposite the operator to the side near the operator. The lower edge of this strap should be just below the lower margin of the breasts.



No. 3.

The second strap is applied in like manner, but just above the breast. The upper edge of this strap should be just above the upper margin of the breasts.



No. 4.

A third strap should extend from one breast just where it ordinarily would fold, to above the other breast, and attached to the lower and upper straps so as to suspend the breasts and to prevent folding.

the breasts may be rendered useless for nursing. Treatment of such cases should be started in the last two months of pregnancy by gently grasping the nipple at its base with the thumb and forefinger and the structures massaged with a sort of pulling motion from base to apex, and continued until the flow of milk is established. This simple procedure, performed twice daily, usually produces excellent results.

However, having taken every precaution during pregnancy to have the breasts in the best possible condition, the post-partum care of the breast is of still greater importance, for it is during this period that they are frequently a source of trouble, due to its increased turgescence and hyperemia, its venous and lymphatic stasis, and its lobular hypertrophy, make it an easily accessible gland for bacterial invasion. Therefore, it is during this time that daily observation and strict attention to details will avoid complications which may render the breasts unfit for use and cause the mother much discomfort.

During the past few years I have seen an unusual amount of breast complications appearing during the lactating period and subsequently, such complications have interfered to a great extent with maternal nursing. It is my opinion that the daily health routine of the lactating mother needs more careful supervision and regulation by the physician, if we are to reduce the morbidity in the mother and to encourage maternal nursing. In many cases the suc-

cess or failure of breast feeding depends on the care given the mother's breast. Many of the conditions can be prevented and probably all of them remedied so as to make nursing a distinct possibility. That breast feeding problems may arise from a local condition in the mammary gland itself, is a factor often overlooked by both the obstetrician and pediatrician. Undoubtedly the care of the breast in the first and second weeks has much to do with the avoidance of later infection. From the relatively rare occurrence of breast infection in cases in which nursing has been well established, it is certain that much of the morbidity from breast infections will be prevented by proper guidance and instruction of the nursing mother. The importance of this condition cannot be overestimated.

At the beginning of the lactating period routine examination of every mother's breast should include inspection, palpation and milk expression. One can thus diagnose and frequently forestall trouble which, if neglected, will result in premature weaning. By inspection, the shape of the nipples and the presence or absence of fissures or abrasions are noted; by palpation one determines whether or not the muscle of the nipple is hypertrophied, or if painful engorgement, or caked and abscessed breasts are present. By milk expression, the degree of tenderness in the breasts and the tone of the circular nipple muscles are estimated. Women with hypertonic or hypertrophic musculature are "hard milkers." In such

cases even a strong new-born infant is unable to exert sufficient suction to overcome the resistance of the muscles; and as a result there is a decrease in the quantity of milk secreted, the baby weakened by starvation, becomes less and less able to obtain adequate nourishment. The vicious circle thus started must be broken by manual expression if breast feeding is to be a success. Abt's electric breast pump is of great value but it is rarely accessible except in hospitals.

The care of the nipples after delivery may be considered under three headings: first, cleanliness; second, the use of a sensible nursing schedule; third, treatment of fissures.

Cleanliness is maintained by washing the nipples before and after each nursing with boiled water. During the intervals between nursings a small square of sterile gauze placed over the nipples will absorb any milk which may ooze out at such times and prevent irritation and contamination from clothing. For the safety of both mother and child it is essential that the most scrupulous attention be given to cleanliness.

Absolute asepsis is admittedly impossible. If, however, we regard the nipples as areas containing many minute orifices, each of which is capable of becoming infected, we shall appreciate the need of employing a routine which is as aseptic as possible. Because fissures are the usual forerunners of mastitis, their prevention and prompt relief are essentially a part of the prophylaxis

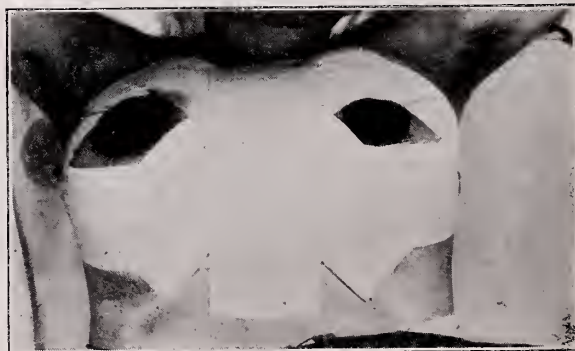
against infection. We should avoid touching the nipples with anything which has not been previously boiled or sterilized. Except for the child's mouth, which obviously cannot be sterilized, this rule can be followed as scrupulously in the care of the breast as in the dressing of a clean surgical wound. The solution as well as the cotton swabs employed in the cleansing of the nipples before and after nursing are rendered sterile before using. Neither the patient nor the nurse should touch this area with her fingers. The nurse should never prepare the breast for nursing without first cleansing her hands. The patient's nightgown should never come in contact with the nipples. If the child has a purulent ophthalmia or pustular eruption, great care should be used to avoid contamination from this source.

The process of labor is a strenuous ordeal for the mother and child; both of them have been subjected to severe physical strain for many hours before the function is completed, and naturally they both need sleep and rest. Therefore, a sensible schedule of nursing is the most important of all measures which aim to prevent tender and fissured nipples. For the first two or three days little or no nourishment is obtained from the breast. If we allow the mother and child to follow their own inclination many nipples will become very sensitive and even fissured by the time the milk secretion is well established. One is often tempted to keep the infant from nursing the breast until the secretion of milk has



No. 5.

A fourth strap is applied in a similar manner as the third strap, but in the opposite direction.



No. 6.

A fifth strap is applied in the median line extending below upward. This strap gives support so as to prevent the dressing from folding further.

commenced, but realizing the fact that considerable anxiety on the part of most mothers would result if their children did not nurse daily, and all who have studied lactation admit that contentment is essential to a good milk supply, I feel that we can avoid this anxiety and at the same time prevent considerable trauma by permitting the child to nurse the breasts only every six hours for the first two or three days. At these nursings just one nipple is used and the infant is allowed to suckle not longer than five minutes. Thus only ten minutes of nursing on each breast is permitted daily. After the milk comes in, feedings are given every three or four hours and last for twenty minutes.

In the interval before the milk supply is established, if the child is restless and to prevent dehydration temperature, small quantities of water, one-half to one ounce, should be given every two hours.

Treatment of fissures: In the majority of cases, if one has followed the above routine of prophylaxis, there will be little need for active treatment of fissured nipples, but we know that fissured or cracked nipples are common occurrences, and even with the best of care they may occur. So it is imperative to start active treatment on their immediate appearance, since infection usually enters through this route.

In order that we may discover them early the nipples should be inspected daily. Under a routine of cleanliness and rest, this troublesome complication rapidly disappears. Absolute rest can be obtained only by discontinuing nursing on the affected breast. While this is an excellent procedure when viewed from the standpoint of surgery, it is not justifiable in most cases, as the stimulating effect of suckling is essential to lactation. Fissured nipples, therefore, is no indication for weaning, for the discontinuance of nursing increases the danger of mastitis. By using a nipple shield of the glass base type, partial rest may be favored without interfering with the function of the breast. The shield should always be used when the nipple is the seat of any disturbance and its use continued until the condition has entirely cleared up.

When the secretion of milk is in excess of the needs of the child the breasts should be emptied by the use of the breast pump. In addition to the use of the nipple shield the breast should be supported by a binder and nursing continued unless the act gives rise to intolerable pain.

Deep fissures of the nipple are extremely difficult to heal and this is especially true of the fissures located at the base of the nipple, because the act of nursing tends to separate the edges and thus extend the ulceration. Such fissures should be anesthetized by applying a pledget of cotton soaked in 20 per cent novocain solution and then cauterized daily with three to five per cent solution of silver nitrate. After the application of silver nitrate a piece of sterile gauze covered with two per cent resorcin ointment or an ointment consisting of silver nitrate Gr iii balsam peru, 3ss lanoline and vaseline, add oz. i, should be applied to the nipples, to remain continuously except during nursings. It is both healing and soothing and it seems to have a definite antiseptic action. In the majority of cases,



No. 7.

A profile view showing the perpendicular position of the breasts from the chest wall.

however, partial rest with a nipple shield aids nature more satisfactorily.

The most common affection during lactation is excessive engorgement; this usually occurs about three or four days after delivery. The breasts become swollen and frequently are very painful, due no doubt to the increased blood supply, increased lymph supply, the production of milk, the failure of the supporting structure or connective tissue of the mammary gland, and lastly the action of gravity. As this distention spontaneously disappears within a few days the plan of treatment is directed toward the relief of pain only. In most cases the proper support of the breasts, supplemented by nursing, is followed by immediate relief, as it assists the organ to remain within its normal confines. This may be accomplished by a breast binder properly applied, with the gland well pressed forward upon the chest towards the median line and away from the axillary spaces, will encourage the natural process with the greatest possible comfort to the mother.

The object of the binder is to hold the breast perpendicular to the chest wall and pointing directly in front of the mother, imitating as nearly as possible the normal position of the virgin's breast, so that they are merely supported in this position with a minimum of pressure being made against the chest wall. The breasts must not be pressed down. In this way there is no compression of the mammary glands and there is no obstruction to any of the ducts, and no twisting of the nipples, thus the milk may be secreted without restriction and may be allowed to flow freely and the natural leakage of the excess may take place in a normal way.

The time that the dressing should be applied is an important point in its success. During the evolution of the nursing breast from the fourth to the sixth day, usually the fifth day, it becomes firm and painful; this is usually just before the milk becomes plentiful, and it is at this time that the binder should be applied. Occasionally it is advisable to apply it the day before; however, caution should be exercised in strapping the breast, allowances being made for the fur-

ther normal swelling. The period of usefulness of the dressing is until after the seventh to the ninth day. Most mothers are so well pleased with the binder that they wish it to remain longer, and some, after it is removed ask to have it reapplied.

The breast binder or dressing that I am about to describe is used and was originated by Dr. DeBuys, of New Orleans. It is the only breast binder that I have found that so completely fulfills all the requirements that are necessary for drainage and especially for the prevention of pain without interfering in any way with the care of the breast and the nursing of the infant. The various steps in the application of the dressing are as follows:

1. The patient is placed in a comfortable reclining position with the arms extended above the head and in the same plane of the body. An assistant then holds the breasts gently in position by raising the breasts slightly upward and toward the median line and away from the axillary spaces.

2. The first strap is applied below the breasts, extending from the side opposite the operator to the side near the operator. The lower edge of this strap should be just below the lower margin of the breasts.

3. The second strap is applied in like manner but just above the breasts. The upper edge of this strap should be just above the upper margin of the breasts.

4. A third strap should be extended from one breast, just where it ordinarily would fold, to above the other breast, and attached to the lower and upper straps so as to suspend the breast and prevent folding.

5. A fourth strap is applied in a similar manner but in the opposite direction.

6. Finally a fifth strap is applied in the median line extending below upward. This strap gives support so as to prevent the dressing from folding further.

The width of the adhesive varies, depending on the size of the breast. The lower and upper straps are usually about three inches wide. The diagonal straps should be two to two and three-fourths inches wide and the fifth strap should be the same width as the diagonal straps.

The thickness of the adhesive also may vary depending on the size of the breast, usually a single thickness is all that is necessary, but at times in the larger and more pendulous breasts a double or triple thickness is necessary.

7. A profile view showing the perpendicular position of the breast from the chest wall shows very nicely how the breasts are properly supported for adequate relief of pain and to facilitate drainage.

When the breasts are thus properly supported, without compression, the relief is almost instantaneous. It is a rare occurrence that one has to resort to codeine, ice bags, restriction of fluids, breast pumping and what-not to relieve the condition, as the above routine is usually sufficient.

CONCLUSIONS

In conclusion I wish to emphasize that the affections of the breast that occur during lactation play an important role in the prenatal and postnatal care of the expectant mother.

A proper routine should take the place of the customary indifferent management of the breast during pregnancy and the puerperium.

The daily health routine of the lactating mother needs more careful study and regulation by the physician. Every nursing mother should be impressed with the fact that by caring for the breast and the nipples, at the very first sign of trouble, they may escape many days of acute suffering.

Breast and nipples deserve a daily examination, including inspection, palpation, and milk expression to avoid unnecessary but frequent disaster.

For the safety of both mother and child it is essential that the most scrupulous attention be given to cleanliness.

The avoidance of prolonged and frequent nursing during the first days before the milk supply is established, is the most important of all measures which aim to prevent tender and fissured nipples.

It is imperative to start active treatment on their immediate appearance, since infection usually enters through this route.

When undue engorgement occurs accom-

panied by sagging of the breast with cake formation the treatment is primarily one of posture. This is best accomplished by the application of the DeBuys Breast Binder.

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DISCUSSION

DR. P. C. SCHREIER, Memphis: I can thoroughly emphasize everything that Dr. Lewis has said in regard to the treatment of breast conditions during pregnancy, and think his paper might well be adopted as a text, for no one would make a mistake in following his method.

Those methods adopted as prevention, I agree with thoroughly, particularly the use of lubricants rather than astringents on the nipples. Rather use nothing than to use an astringent. White vaseline is a very good lubricant in the last two months of pregnancy.

Now, as to the abortion of an impending infection. In treating fissured nipples with silver nitrate, my practice is to use a caustic stick, usually one good cauterization kills the fissure and permits healing. Probably though, more important, and certainly more recent, is what Dr. Lewis showed on the screen, and I want to emphasize that by agreeing with him thoroughly in the use of DeBuys adhesive supporting of the breasts. If the breasts hang as they do so frequently, laden with milk secretion, the blood vessels are kinked and bring about the engorgement or caking. If you bring the breasts up to the horizontal position so as to establish circulatory equilibrium, you permit free drainage, so that this engorgement will be readily relieved and prevented from recurring.

I frequently observe that after this strapping is applied properly, the breasts empty themselves to the point where they are very soft and pliable. The patient will call your attention fifteen minutes later to the fact that her gown is thoroughly saturated with milk, which overflows after applying this adhesive support.

Nothing I have seen has given more pleasure and more comfort to the patient than the use of DeBuys adhesive support of the engorged breast, and it would be well for us to watch these slides and learn the correct technique.

One other point that probably Dr. Lewis will touch upon in the balance of his paper is the treatment of the infected breast, because once in awhile, in spite of all of our care, we do have an infected breast, more often though because the patient did not follow our directions or was not under the care of a doctor.

What about the breast abscess? My practice now, of course, as it always has been and all you have done, is to open the breast abscess, but there is a little difference in the incision. In favorable cases, I find that a semi-circular incision, described a few years ago, made underneath the breast, then pulling the breast up and evacuating the abscess from the back side rather than making a lineal incision on the exposed surface of the breast, which leads to a disfiguring scar. This incision permits ample drainage and irrigation. After healing has taken place the scar is covered by the breast tissue to the gratification of your patient.

DR. M. S. LEWIS, closing: I wish to thank Dr. Schreier for his discussion. If you noticed when

the breasts were placed in proper position for strapping, milk began to exude immediately showing very nicely the idea of proper drainage. This is more marked as the dressing is further applied, as plainly seen in slides 2, 3, 5, and 6, showing that they are merely supported in this position with a minimum of pressure being made against the chest wall. Thus there is no compression of the mammary gland and there is no obstruction of the ducts or twisting of the nipples. The milk secretes naturally without restriction and may be allowed to flow freely.

This breast binder has given me great satisfaction and I am sure if each one of you would try it, you would be gratified with the results.

Send in your application for space in the Physicians' and Surgeons' Directory. See Editorial page in August issue for information.

NASOSEXUAL RELATIONS*

WM. D. STINSON, M.D., Memphis

THE study of the relationship existing between the nose and the sexual apparatus presents an interesting enigma, consideration and recognition of which will be of equal value to the general practitioner, the gynecologist, and the rhinologist alike. That such a relationship does exist has been recognized since time immemorial, and related in song and story. Aristotle, Celsus, and Hippocrates, names familiar to all members of the profession, Tennyson, Shakespeare, and other poets, William Lilly of early astrologic fame, sacred books such as the Song of Solomon and the Ayurveda, the sacred classic of the Hindus of fabulous antiquity, Zola, Tolstoi, Lombroso, and even the laity in their facetious references to "honeymoon catarrh," all have contributed to our general recognition of this relationship.

Quoting freely from, and acknowledging my indebtedness to the first scientific exposition of this subject, the paper of John Noland McKensie, appearing in 1884 in the *American Journal of Medical Sciences*, and other works, allow me to set before you several interesting examples of early recognition of this subject.

Aristotle clearly notes the changes in the voice at puberty and the effect of castration upon its qualities. Its harsh, irregular and discordant character during maturation of the sexual functions was affirmed to be more conspicuous in those who attempted early gratification of the sexual appetite. We are all familiar with the dry mouth, husky voice and nasal obstruction that frequently follows coitus. This observation led the voice trainers in the ancient days to practice infibulation, or the stitching together the prepuce in the male, and the labia majora in the female, to prevent wanton indulgence in copulation during the stu-

dent's training period. J. Riolanus quotes the case of a girl sent to fetch wine from a public house, who was seized and ravished on the road, and who found in attempting to sing on her return that her voice had changed from acute to grave.

Again, witness the ancient nuptial ceremony of measuring the neck of the bride before retiring on the wedding night, and again the following morning, equal measurements establishing the persistence of virginity, while an increase in size was a definite indication of defloration. Statistics of incidents are not given.

The size and form of the nose as an indication of corresponding attributes in the penis was a generally accepted diagnostic sign among the licentiously inclined in the days of Heliogabalus, and Johanna, Queen of Naples. Christian Francis Paulline was the first doubter, and in alluding to the prevalent impression that a large nose indicated a correspondingly acceptable virile organ gravely stated that he had known several noble and pious men in whom the rule did not hold good.

According to the astrologers, Venus governed the nose and likewise presided over generation and all pertaining parts. Thus, De la Chambre, 1660, said that to those who admit the influence of the planets on the affairs of men there is no doubt of the intimate relationship between the genital organs and the nose. William Lilly, in the same century, claimed never to have made a mistake in establishing the fact of virginity or defloration by astrologic signs. Along the same lines but on a more definite basis may be cited the authentic case of Milligen's in 1848, of an old pensioner in the Hospital for the Blind at Paris, who by the touch and odor of a woman's hands could infallibly assert if she were a virgin, though many subterfuges were used to mislead him.

Solomon, rare in judgment, rich in wives

*Read before the Eye, Ear, Nose and Throat Section of the Tennessee State Medical Association, Jackson, April 8, 1929.

and marital experience, chanter of the Sensuous Song of Songs, says:

"My beloved is unto me as a cluster of camphire in the vineyards of Engedi.

"Until the day breaks and the shadows flee away, I will get me to the mountain of myrrh, and to the hill of frankincense."

Spring, the season of flowers and pervading odors, has always been the season of love and sexual delight.

Descending from the realms of fancy and the heights of pleasing speculation to the concrete world of anatomy, histology, and physiology, there are various definite evidences of this relationship. That there is erectile tissue in the nose identical with that in the genitalia, distributed over the inferior turbinate, the dependant border and posterior extremity of the middle turbinate, and over adjacent portions of the nasal septum, particularly the tuberculum septi, is a well-established fact. In this connection, too, may be cited the case of Heschel, in which imperfectly developed genitalia were associated with absence of both olfactory lobes.

It is plausible, and indeed probable, that nasal stimulation if of the proper sort will reflexly stimulate the sexual apparatus independently of the obvious influence of the olfactory sense in the sexual reflexes. Thus, Canfield relates the case of a young woman who had experienced a definite orgasm as the result of massage of the turbinates. There are several cases in the literature of priapism subsiding from removal or blockage of the irritative factors in the nose. Had Ponce de Leon, vain seeker after the Fountain of Youth, confined his endeavors to the labyrinths of the nose rather than the everglades of Florida, what a boon might he not have conferred on desirous but impotent man! Tragically to relate, I can find no instance of priapism being voluntarily induced by nasal stimulation in the male. However, there is the case of a man who practiced masturbation to produce epistaxis which in turn relieved his headaches.

Since the trigeminal nerve carrying afferent impulses from the nose establishes relationship with somatic and sympathetic

efferent neurons of various motor cranial nerves and of the upper spinal nerves, it is highly probable that similar relationships are established with the dominant vasodilator center, probably located in the medulla. The dominant vasodilator center is known to have a connection with the subordinate vasodilator center in the lumbar cord, thus establishing a complete circuit from the nasal cavity to the erectile tissue of the genital apparatus, or at least so Schaeffer expresses it. In simpler form Fliess, in 1897, said:

"In the nose the erectile bodies are under the control of the sphenopalatine ganglion, which receives sympathetic fibres from the carotid plexus through the petrosus profundus nerve. There would thus be an anatomical path to the sympathetic, which controls the sexual functions as well."

Clinically, the female offers a more abundant field for study of the relationship between the nose and the sexual organs than does the male. There are many definite evidences which may be listed as follows:

1. Engorgement of the nasal cavernous tissue occurring with systematic periodicity during the menstrual cycle, producing headaches and frequently associated with epistaxis, the so-called vicarious menstruation, and subsiding with the cessation of the menstrual flow. Here may be cited the case of a young married woman who came to me some time ago with a nose bleed. She gave a history of severe headache with each period and occasional epistaxis occurring only at this time. The hemorrhage proved quite obstinate and was only controlled by cauterization of that part of the nose corresponding to the cavernous tissue. Since this time she has been free of headaches and has had no further epistaxis which leads me to believe that the sensitive areas of the nose which were involved in the nasosexual reflex were destroyed by the cauterization.

2. Sympathetic engorgement of the erectile tissue of the nose, similar to that occurring in the nipples of the mammary glands during sexual excitement, and leading to sneezing, coughing and asthmatic attacks, rhinorrhea, or simple nasal obstruction.

3. Aggravation of nasal pathology during the menstrual period or pregnancy, manifested particularly in sinusitis, and in ozena in which the crusting and odor is markedly increased at this time. Here, too, may be mentioned the frequency with which this latter condition is associated with ovarian insufficiency, and the improvement that results from the administration of *corpus luteum*. I have two patients both of whom I have treated during two pregnancies, or more particularly, in the postpartum period for acute maxillary sinusitis associated with severe neuritis of the extremities. One of these patients, who has given birth to four children, states that each postpartum period has been attended by this identical condition.

4. Reflex pain over referred areas identical with those of the sinuses, occurring in pelvic displacements and pelvic engorgements.

5. Pain located directly over the sinuses, and corresponding to that produced by pathological conditions of the sinus, during pregnancy or menstruation. Herein lies one of the pitfalls of sinus surgery for those who are prone to operate upon a subjective diagnosis to which a doubtful radiogram has added strength. Particularly is this true of the sphenoid sinus, although it also pertains to the frontal and maxillary sinuses.

A typical case is that of Mrs. H. B., who, in the fifth month of pregnancy complained of severe frontal headache with tenderness over the left frontal sinus. This headache came on in the morning and generally subsided about noon. She stated that a similar condition prevailed during her previous pregnancy but that in the interim she had been entirely free of symptoms, and seldom even had headcolds. Her nose showed marked congestion, but there was no discharge of any nature. Trans-illumination of the sinuses showed increased density. Cocainization of the nasal mucous membranes relieved all symptoms temporarily, and she has been entirely free of symptoms since delivery over two years ago.

L. G. complained of pain and tenderness over the left antrum associated with dys-

menorrhea during her periods. She had only menstruated three times and stated that this condition first appeared at her first menstrual period, and had been coincident with each successive period. There was marked congestion of the turbinates, but no discharge, and both transillumination and X-rays of the sinuses were negative. Cocainization relieved all symptoms, including the pelvic distress and she had no further trouble after her periods became definitely established.

In 1897, Wilhelm Fliess, of Berlin, found certain areas in the nose which he called genital spots, and which underwent definite changes before and during each menstruation, with such regularity that with a little experience he was able to predict the onset of the flow by examination of the nose. These spots were limited to the anterior half of the inferior turbinate and to the tuberculum septi. During the premenstrual and menstrual periods they became turgescient, hyperesthetic and bled freely from any trauma, all of which signs disappeared with the cessation of menstruation.

Fliess also found that not only could he relieve the pain of some forms of dysmenorrhea almost immediately by cocainizing the genital spots, but that the septum controlled the sacral pain while the inferior turbinate influenced only the abdominal distress, and that anesthetizing the right side had a contralateral effect and vice versa.

Later workers, who elaborated on the original work of Fliess, have added several interesting factors which are worthy of consideration. Thus Brettauer reports conception in four women shortly after the treatment, all of whom had been sterile for years. Koblanck treated twelve women for sterility, nine becoming pregnant, four immediately, and the other five within a few months. Still others, namely, Stiasny and Mahn, claim to have rendered the dilatation pain of the first stage of labor much less marked without harm to either mother or child.

Obviously, it is only in that type of dysmenorrhea characterized by a multiplicity of symptoms with only minor or no organic

disorders in the pelvis, that are amenable to this treatment.

In concluding this paper, which is admittedly more philosophical and amusing than instructive, I have only one point to emphasize. No rhinological examination in a female patient is complete, nor can a reliable opinion be rendered, without taking into consideration the status of the pelvis in that patient.

DISCUSSION

DR. GREENFIELD, Memphis: I think this group of cases falls under one large head of the sensitive type, which are probably hereditary by nature. In diagnosing these cases one has always to bear in mind the possible cause of analogy, of symptom, and I think frequently some of the cases brought up and reported possibly later on may have an allergic basis for the cause of this trouble.

In reference to that, I want to report a case that I observed a few years ago. A lady came to me with a symptom of nasal obstructions. There was no clue to the possible cause. In my inability to find a cause, I sent her for a blood culture, with no particular positive blood culture and a possible history obtained after careful examination. Of course, it was another group that you cannot find a cause for.

I think Stein, from Chicago, reported a group of that type of patients and treated them by injections in nasal. I injected brominol and she got immediate relief.

I merely bring up these two cases to show the possible cause one has to think of in your differential diagnosis, in your effort to help the patient. We don't run across the nasosexual relation type of case, and I am always in doubt about the connection.

I think certainly they are of the unstable group and one has to be very careful in not overlooking some other possible cause.

DR. JERE W. CALDWELL: I have been sitting here noticing the operation of the shorthand machine, and the tape of discussions are going down to the floor, so this paper is in line for a few dirty remarks. Nasosexual relations. Of course, civilization has developed us to the place where we are influenced sexually more by sight and touch, rather than by the olfactory nerves, as animals are. The doctor's paper brought a case to my mind, that was sent to my office some time ago, to determine if she had any contacts in the nose that could account for her attacks of hay fever. On sensitization, she was found to be very sensitive to goat hair. Now off hand you would wonder, how often does one come in contact with goat hair. Mohair material, which is made from a goat hair is used a great deal in the upholstery of a great many automobiles and also in the lining

of clothes. The history told us that her husband was a traveling salesman for mohair material and when he was at home her symptoms of hay fever were worse regardless of the season. The best we had to offer her was to change her husband or for him to get another job. But I am now beginning to wonder, after listening to the doctor's paper, if, after all, it might not have been nasosexual.

DR. C. D. BLASSINGAME, Memphis: I had one case that I think is a very good case along this line. A few years ago, I was treating a young lady who came in occasionally to have her nasal mucous shrunken on account of discomfort that she developed, and, of course, for a long time didn't catch on, but finally I began to suspect from her remarks around that this came on in association with certain of her habits. And finally one day, she told me (I might say, if you will take into consideration the fact that she was a waitress in a cafe and everything else pointed to the fact that she was not circumspect in all of her habits) that these attacks came on after certain practices that she did when at times, and I found that she had these attacks following nights of debauchery. That is, she told me frankly that they always came after she had a night of unusual sexual excitement, and she had noticed, herself, that there was a very close association with it. So that one case led me to believe that there is a considerable amount of association between the two of them.

DR. W. G. KENNON, Nashville: I think if you will probably get a sort of leaning toward looking for the nasosexual relations, you will probably find a few more of them. I personally have seen only one case in which I felt that there was a definite relationship between sexual excitement and the development of a sort of hay fever syndrome.

This was in a young lady, had recently become engaged, when she came to me complaining of sneezing, nasal discharge and asthma. The history was that the symptoms developed after she had become engaged.

She was very anxious to know whether she should marry, fearing that the asthma would cause her to become an invalid. I advised her to marry and requested that she let me know what effect the marriage relation had on her asthmatic condition. The gratification of sexual desire apparently has relieved this condition entirely.

DR. W. D. STINSON, closing: I wish to thank the gentlemen for the discussion.

The most practical part of this subject to me has been the apparent, and I think the real, connection between definite organic conditions in the pelvis and organic conditions in the nose, so much so, I have made it a point when any female patient comes in and has nasal symptoms in which the findings are not absolutely definite, to consent to have a gynecologist examine her. Women with headaches, we find the gynecologist will find some pelvic displacement.

INJURIES TO THE HAND*

ROY A. DOUGLASS, M.D., Huntingdon

FOR both social and economic reasons the hands are more useful than any of the special senses. Even a slight injury to a skilled hand may be completely disabling. For example, a musician, a typist or seamstress.

In practice 90 per cent of hand injuries are in men of the laboring class who must depend entirely on the strength in their hands to earn a living. For example, plumbers, mechanics and carpenters.

In the hand there are twenty-eight bones, all of which have two or more articular surfaces except the distal bone of the fingers.

The anastomosis of the branches of the radial and ulna arteries is so complete that the severing of one artery will not cripple the hand.

The nerve supply is furnished by the ulna radial, median musculo-cutaneous and internal cutaneous. Being terminal nerves in the hand the power to regenerate after injury is good.

There are more than one hundred muscles in the hand, many of which help to form the same function.

Fractured bones of the hand are not serious unless compound. Cuts are serious because of the injury to the tendons. My experiment in repairing tendons has been very unsatisfactory, having had 50 per cent failure. Fortunately cuts are not common, neither are penetrating wounds. The most common and disabling injuries are lacerated and contused wounds that mutilate, often crushing or tearing away a portion of the hand. The more common inquiries are gun shot wounds, wounds produced by the hand being caught between heavy objects and crushed, as between cars, cross ties, in cogs and cut by saws. There will be much tissue that must be cut away. This destruction of tissue greatly increases the danger of infection.

The cosmetic result should be ignored and the whole treatment should aim at conserving function. Daily inspection is necessary to prevent contraction and stiff fingers. An almost completely severed finger will heal if sutured promptly and the distal end kept warm for two days. If it is the thumb that is severed it is very necessary to make this effort, because without the thumb the grasping power is lost.

For wounds that partially sever the ends of a finger I have found small metal clips most useful as sutures pull out easily on the palmar surface of fingers and around the finger nails.

Hand injuries should be cleansed with benzine or ether, then 2 per cent mercuriochrome and iodine poured on freely. My preference is iodine; never use soap and water.

While repairing wounds of the hand a tourniquet controls the hemorrhage and produces some numbness.

Fingers should always be amputated at a joint. The end of tendons should be sutured to the fascia to obtain flexion of the remaining joints.

In applying splints if a little flexion of the fingers is made it will be much more comfortable and be less likely to produce stiff fingers.

For burns I use 2 1-2 per cent tannic acid for twenty-four hours as a wet dressing and then protect the raw area by wire splints. This I have found most satisfactory both for comfort and final result.

Infections are very frequent, painful and dangerous to life. Here it is best to follow the general rule of waiting for pus to form. Splitting inflamed fingers or opening palmar abscesses before pus develops is very painful, does not hasten recovery and probably is definitely injurious. While waiting it is well to use manganese or protein therapy and hot applications for relief of pain. After a discharge appears I believe wet dressings are injurious to abscesses.

*Read before the Railway Section of the Tennessee State Medical Association, Jackson, April 9, 1929.

For opening abscesses I always use 2 per cent novocaine. Then if it is possible to make a larger incision the relief is very pleasant to the patient. Fingers should never be incised on the palmar surface because the scar will be large and the tactile sense impaired.

Also never incise a finger at a joint for two reasons; may get a stiff joint or cut the fibrous band that holds the tendons at the joint.

For palmar abscesses keep the incision as

near the edge of the palm as possible and parallel to the tendons.

CONCLUSION

1. In treating hand injuries the purpose is to conserve function.
2. Never allow a finger to heal stiff; it had better be amputated.
3. Never incise a finger on the palmar surface.
4. Frequent inspection is necessary.

A CHICAGO PLAN

The installment plan has been invoked by the Chicago Medical Society for the benefit of those who are sick and unable to make prompt payment.

The new arrangement is called "the modern medical budget plan" and its purpose is to finance worthy sick persons on a cost basis, the patient to make repayment in weekly or monthly installments.

Under the plan, the patient summons the physician of his choice, who diagnoses the case, indicates the course of treatment and then estimates the cost. The doctor fills out a card which serves as authorization to finance a loan to the patient at 6 per cent interest for the physician's individual account.

As soon as the loan is made, the physician is mailed a check for 35 per cent of the total bill. The balance is paid to him by the finance corporation in installments, consisting of one-half of all moneys still due, principal and interest, when and as collected. The patient is completely financed, Dr. Hutton said, and the physician finally receives 86.37 per cent of his total fee. The finance organization retains 13.63 per cent as the doctor's contribution to the plan, and it creates a special fund against which all bad loans are charged.

If the loan proves uncollectable the physician receives only the 35 per cent originally advanced, which assures him of receiving at least a fraction of his costs in time and services.

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H. H. SHOULDERS, M.D., Editor and Secretary

EDITORIAL

THE COST OF MEDICAL CARE

In the August issue of the JOURNAL there appeared on the editorial page an article prepared by the President of the Julius Rosenwald Fund. That article appeared in one of the largest daily papers in the United States, namely, the *New York Times*.

The August issue of *Current History* carries an article entitled "The Cost of Medical Disorganization." It is by a research chemist by the name of T. Swann Harding.

It will be noted that neither of these authors is a medical man. Both have given academic consideration to the problem discussed. An academic discussion of any matter is easy. A practical consideration from the standpoint of experience and knowledge of fundamental conditions is another matter.

A large committee has been formed for the purpose of investigating the cost of medical care. The American Medical Association is represented on the committee. This committee is collecting information upon which to base some conclusions as to what the situation really is and as to what should be done about it.

All the articles we have reviewed on this subject which were prepared by lay people convey the impression that the medical attendant's fee constitutes the entire or the major cost of medical care. Such an impression is grossly misleading.

One of the authors makes the suggestion that doctors feel that they own the science of medicine. This is not true.

It may be truthfully said that the science of medicine belongs to humanity and it has been the job of doctors to see to it that no new discovery of value to humanity was monopolized by any individual or group of

men anywhere. A medical discovery by a doctor does not belong to him even. It belongs to humanity and medicine has seen to it that the discoverer has no copyright and no patent right on the discovery.

It may be said that doctors as such are the guardians of the science of medicine and from our observation of what happens with regard to other discoveries and from what has happened throughout all the history of medicine there is no group of men in existence more fitted to be the guardians than doctors.

The art of medicine is another thing. It is essentially an individual matter. One man acquires an art. He cannot give it away and the practice of medicine is a science and an art. This fact prohibits the practice of medicine from ever becoming what some of our sociologists would attempt to make it.

THE DIRECTORY DEPARTMENT OF THE "JOURNAL"

In the August issue of the JOURNAL there appeared on the editorial page a discussion of the matter of a directory for the JOURNAL.

We have received some applications for space, though we have not received a sufficient number to make up one page. Those who are interested are requested to communicate at once. Simply write the office a letter and a contract blank will be forwarded.

DEATHS FROM DIABETES

The following brief article was forwarded to the JOURNAL by Dr. E. P. Joslin with the suggestion that we run part or all of it. We take pleasure in running the entire article.

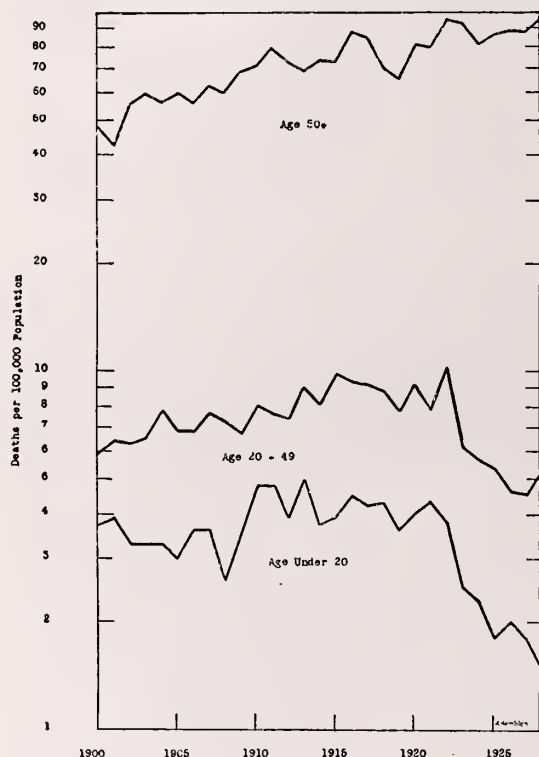
It seems that this article was prepared for the State Board of Health of Massachusetts.

PREVENTION OF DIABETIC DEATHS

Massachusetts's record in regard to diabetes must be maintained and improved. The following letter and chart are of such interest that we are sending them to the doctors in the state. As a step in still further reducing this cause of death we are asking a few physicians competent to speak on this subject if they will be on call for addresses

to medical groups. If any such group is interested in devoting a meeting to this subject we would be glad to help them obtain such a speaker.

DIABETES MELLITUS BY AGE GROUPS Massachusetts—1900-1929



June 12, 1929

Dr. George Bigelow, Commissioner.

My dear Dr. Bigelow:

I take great pleasure in enclosing the mortality chart for diabetes mellitus by age groups in Massachusetts—1900 to 1928, compiled for me, out of hours, by Angeline D. Hamblen of your department. This chart is the most encouraging diabetic chart which has ever come to my attention.

From the chart you will see that diabetes under the age of 20 has almost disappeared from Massachusetts and that between the ages of 20 and 49 the mortality is lower than at any time in this century, whereas above the age of 50 there has been a gradual rise. As a matter of fact Miss Hamblen has demonstrated that this rise does not begin for men in Massachusetts until the age of 60, so that it is the women after the age of 50 who are chiefly responsible for the increasing death rate in Massachusetts.

Perhaps other states have done as well, but it is my impression that Massachusetts is a banner state in this regard. At any rate one of my patients was so impressed with the chart that he has placed at my disposal a fund to be used in promoting the

treatment of diabetes mellitus in Massachusetts, so that this state will be a model for all the rest.

We physicians in Massachusetts can lower diabetic mortality still more provided we attack diabetic coma. The Metropolitan Life Insurance Company has recently shown that of 1044 fatal cases of diabetes reported to them this year up to April 15, coma was responsible for 433 deaths or 41 per cent.

It is really our own fault, therefore, that mortality from diabetes is not decreasing, because diabetic coma is always preventable and nearly always curable. As one of the best practitioners in the state recently said, "Diabetes is a chronic disease, but doctors do not realize that it has acute manifestations."

Indeed, coma develops because of ignorance, negligence or carelessness. Diabetics go into coma carelessly when they break their diets and overeat; they go into coma as a result of negligence when in the course of an infection, either general like measles or local like a boil, they neglect to make the proper tests to determine whether they are using enough insulin; they go into coma ignorantly, because they stop their insulin when they cease to eat for one cause or another.

A diabetic should never omit his insulin unless his urine is sugar free. He must never forget that when he stops eating food he begins eating himself—his own body—and so still requires insulin and often very much more insulin than before.

If he has an infection as a cause of his loss of appetite he should know that an infection lowers the value of insulin and thus makes more insulin than usual a necessity.

Coma, and by diabetic coma is meant acid poisoning, is a sly fox and will steal away a diabetic before he or his friends suspect it. Within a few hours mild symptoms such as indigestion, lack of appetite and pain in the abdomen may be followed by difficult breathing, drowsiness and unconsciousness. The only safe way, therefore, for the diabetic to protect himself against coma is to keep well and sugar free all the time.

I try to instill into the minds of every diabetic I see that:

Whenever he feels ill and sick he should (1) call his doctor (2) go to bed (3) take a hot drink every hour (4) take an enema (5) keep warm (6) get a nurse or someone to care for him. Another good rule is to have boiled water ready for the doctor when he arrives in case he wishes to use it.

Minor differences in the treatment of coma exist, but all agree that promptness in diagnosis is everything and next to it comes energetic treatment at the earliest possible moment. If coma exists the doctor must give up everything else until the patient comes out of it. (1) Insulin is usually required every half hour in 10 to 40 unit doses or

more, varying with the severity of the symptoms and if it is given intravenously it should always be given subcutaneously at the same time. (2) Dehydration of the patient must be overcome by the subcutaneous injection of normal salt solution and one cannot rely on fluids given by mouth or rectum. (3) The heart is almost always weak and needs stimulation with caffein sodio-benzoate, 7½ grains and this may be given every hour if need be, for three or four doses. On account of the weakness of the heart, salt solution must be injected very slowly if given intravenously. (4) With children and usually with adults the stomach is distended and unless evacuated prevents the subsequent retention of liquids such as water, gruels,

ginger ale or the juice of 2 or 3 oranges, in other words, carbohydrate amounting to 50 grams. Therefore, gently wash out the stomach.

If you think of any way in which my friend can cooperate with you in bringing about further improvement in the treatment of diabetes in Massachusetts and particularly can aid in annihilating coma, please let me know.

Sincerely yours,
ELLIOTT P. JOSLIN.

AW

CENSUS CORRECTION
SHELBY COUNTY

Arthur, W. R.....Germantown’76 ’18

DEATHS

Dr. J. L. McKenzie, of Cleveland, aged 54, died July 17, in a sanitarium in Nashville.

Dr. McKenzie graduated from the Chattanooga Medical College in 1896.

At the regular meeting of the Bradley County Medical Society August 1, 1929, the following minute was unanimously adopted:

Whereas, our dear friend and companion, Dr. James L. McKenzie, has passed to his reward, it seems fitting that we who knew and loved him should give expression in our sorrow to a few words of affection and appreciation.

Each member of this Society feels a peculiar and personal grief in his loss. As our Vice-President of the year 1929, he showed to all unfailing courtesy and fairness. He was gentle and lovable as a companion, firm

as the everlasting hills in his stand for right and honest dealing. He was a Tennessean of the old school, a beloved physician, who impressed those who knew him with his simplicity, wisdom and Christian dignity. In his death, the county has lost a good citizen and faithful official of this Society, the medical profession a loyal physician of the highest type.

Your committee submits these few words and have been requested by the Society assembled that a copy be sent to the bereaved family, to whom we express our deep sympathy, a copy to be recorded in the minutes of this Society, a copy sent to the State Medical Association, and copies printed in the papers of Cleveland, Tenn.

Signed: R. L. BEAN,
W. B. CAMPBELL,
E. R. FERGUSON.
Committee.

August 6, 1929.

CORRECTED ROLL OF COUNTY SOCIETIES

COUNTY	PRESIDENT	SECRETARY	MEETING DATE
Anderson	H. F. Stiltner, Windrock	J. S. Hall, Clinton	1st Mon., 2 P.M.
Bedford	John W. Sutton, Petersburg	W. H. Avery, Shelbyville	3rd Thurs., 2 P.M., Dr. Ray's office.
Benton	See Carroll County.		
Blount	K. A. Bryant, Maryville	J. A. McCulloch, Maryville	Every Thurs., 8 P.M., First Natl. Bank Bldg.
Bradley	W. H. Sullivan, Cleveland	E. R. Ferguson, Cleveland	1st and 3rd Thurs., 7 P.M., Court House.
Campbell	J. W. Presley, Pioneer	F. A. McClintock, Newcomb	
Carroll	H. T. Collier, McKenzie	A. C. Elinor, McKenzie	Carroll, Weakley, Benton, Henry, 2nd Tues., Hotel Lynn, McKenzie.
Carter	J. L. Cottrell, Elizabethton	E. T. Pearson, Elizabethton	1st Mon., 7:30 P.M., First Natl. Bank Bldg.
Cheatham	W. S. Lockert, Ashland City	P. L. Pitt, Ashland City	
Chester		J. D. Anderson, Henderson	
Claiborne	See Hancock County.		
Clay	See Macon County.		
Cocke	A. L. Proffitt, Newport	J. E. Hampton, Newport	1st Tues.
Coffee	R. L. Dossett, Tullahoma	E. P. Vaughan, Manchester	1st Thurs.
Crockett	See Dyer County.		
Cumberland	E. W. Mitchell, Crossville	V. L. Lewis, Crossville	Cumberland, Overton, White, 3rd Thurs.
Davidson	J. O. Manier, Doctors' Bldg.	Sam P. Bailey, Doctors' Bldg.	Every Tues., 8 P.M., Doctors' Bldg.
Decatur		J. L. McMillan, Decaturville	
Dickson		R. P. Beasley, Dickson	
Dyer, Lake and Crockett	C. A. Turner, Dyersburg	E. H. Baird, Dyersburg	1st Wed., monthly.
Fayette		J. W. Morris, Somerville	Fayette-Hardeman, 1st Thurs.
Franklin	L. A. Templeton, Winchester	John P. Grisard, Winchester	Last Fri., 7 P.M., Court House.
Gibson	W. C. McRee, Trenton	George E. Spangler, Humboldt	
Giles	A. M. Allen, Buford	G. D. Butler, Pulaski	
Greene	L. E. Coolidge, Greeneville	M. A. Blanton, Mosheim	2nd Tues., 7 P.M.
Hamilton	J. H. Revington, Volunteer Bldg.	S. F. McIntosh, Volunteer Bldg.	Each Thurs., 8 P.M., Manufacturers' Association Bldg.
Hamblen	William E. Howell, Morristown	C. T. Carroll, Morristown	
Hancock, Claiborne, Union		I. N. Ford, New Tazewell	2nd Mon.
Hardeman	See Fayette County	J. Y. Alexander, Middleton	1st Tues. in Jan., April, July and October, Bclivar.
Hardin, Lawrence, Lewis, Perry, Wayne	J. T. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tues.
Hawkins		J. S. Lyons, Rogersville	
Haywood	J. M. Chambers, Brownsville	J. L. Edwards, Brownsville	Last Tues., 7 P.M.
Henderson		J. F. Goff, Lexington	
Henry	R. G. Fish, Paris	A. A. Oliver, Paris	(See Carroll County).
Hickman	C. V. Stephenson, Centerville	L. F. Prichard, Only	
Humphreys		W. W. Slayden, Waverly	
Jackson	J. D. Quarles, Whitleyville	L. R. Anderson, Gainesboro	1st Fri., Court House. (See Macon County.)
Jefferson		B. M. Tittsworth, Jefferson City	
Johnson	See Sullivan County.		
Knox	Ray DePue, West Church St.	Jesse C. Hill, 4323 Lyons View Pk.	Every Tues., 8 P.M., Medical Bldg.
Lake	See Dyer County.		
Lauderdale		W. V. Sanford, Ripley	2nd Thurs.
Lawrence	See Hardin County.		
Lewis	See Hardin County.		
Lincoln	D. T. Hardin, Fayetteville	J. V. McRady, Fayetteville	
Loudon	W. H. Harrison, Loudon	J. G. Eblen, Lenoir City	1st Thurs., Loudon; 3rd Thurs., Lenoir City, 7 P.M.
Macon	M. H. Allen, Lafayette	P. East, Lafayette	1st Wed., each quarter.
Madison	J. R. Thompson, Jackson	B. C. Arnold, Jackson	1st and 3rd Tues., 7:30 P.M., Y. M. C. A.
Marshall		J. A. Hardison, Lewisburg	4th Thurs.
Mauzy	Watt Yeiser, Columbia	W. K. Shedd, Columbia	2nd Mon., 11 A.M., Elk Lodge Room.
Monroe	H. C. Shearer, Madisonville	H. M. Kelso, Madisonville	2nd Tues., Aug., Sweetwater.
Montgomery	C. N. Keatts, Clarksville	Bryce F. Runyon, Clarksville	3rd Thurs. night.
Morgan		J. F. Love, Lancing	
McMinn	J. R. Nankivell, Athens	C. O. Foree, Athens	2nd Thurs., 2 P.M., Dr. Nankivell's office.
McNairy	R. M. Hendrick, Selmer	H. C. Sanders, Selmer	3rd Thurs.
Obion	C. B. A. Turner, Union City	F. B. Kimzey, Union City	
Overton	See Cumberland County	A. B. Qualls, Livingston	3rd Fri.
Perry	See Hardin County.		
Polk	C. W. Strauss, Copperhill	F. O. Geisler, Isabella	
Putnam	H. H. Taylor, Cookeville	C. P. Martin, Cookeville	1st Thurs., 1:30 P.M.
Roane	R. E. Regester, Rockwood	T. H. Phillips, Rockwood	1st and 3rd Tues., 1 P.M., Red Cross Rooms.
Robertson	J. S. Freeman, Springfield	W. F. Fyke, Springfield	3rd Tues.
Rutherford		J. A. Scott, Murfreesboro	
Sevier		C. S. Kinzer, Johnson City	1st Mon., 7:30 P.M., Central Hotel
Sullivan	T. B. Yancy, Kingsport	H. S. Smythe, Bristol	
Shelby	O. S. McCown, Bank of Com. Bldg.	A. F. Cooper, Bank of Com. Bldg.	1st and 3rd Tues., Medical Arts Bldg.
Smith	R. E. Key, Monroville	B. J. High, Elmwood	1st Fri.
Sumner	L. M. Woodson, Gallatin	John R. Parker, Gallatin	
Unicoi	R. E. Stack, Erwin	J. R. Moody, Erwin	Every other Thurs.
Union	See Hancock County.		
Warren		John S. Harris, McMinnville	1st Wed., 1:30 P.M.
Washington	C. W. Friberg, Johnson City	Edward T. Brading, Johnson City	2nd Thurs. at noon, Hotel John Sevier.
Wayne	See Hardin County.		
Weakley	T. B. Wingo, Martin	J. E. Taylor, Dresden	3rd Wed., May, Aug., and Nov., at Martin. Also see Carroll County.
White	J. E. Mathis, Bearden	S. E. Gaines, Sparta	2nd Thurs., Dr. Gaines' office.
Williamson		K. S. Howlett, Franklin	2nd Tues.
Wilson	L. D. Allen, Smithville	J. R. Bone, Lebanon	Thurs. after 1st Wed., 2:00 P.M.

MEDICAL SOCIETIES

The Southern Tuberculosis Conference and the Southern Sanatorium Association will meet in Nashville September 25-27. Headquarters Hermitage Hotel.

In addition to all of the southern leaders in the tuberculosis field men of national reputation will be present and take part in the discussion. Especial effort is being made to make the meeting well worth attending.

The scientific papers are from authorities. The clinics presented will show the very latest advances in the tuberculosis field. Round table discussion on hospital management and social service work will be held.

For further information address Dr. M. F. Haygood, Secretary, Tennessee Memorial Building, Nashville.

The East Tennessee Medical Association meets on October 17th and 18th at Lenoir City. The program is being filled full of good papers. Dr. Sidney Miller of Baltimore will be one of the out-of-state speakers. Everything is being done to make this meeting the best ever, but if it only comes up to par it will be well worth attending.

Blount County.—The July meeting was a fish fry to which the wives and a few friends were invited by the members of the society.

Bradley County.—On August 1st, Dr. H. M. Roberson presented a paper on venereal disease control. Dr. W. B. Campbell, Cleveland, was elected Vice-president to succeed Dr. J. L. McKenzie, deceased. Resolutions on Dr. McKenzie's death were adopted and are published in this issue.

Carroll-Benton-Henry-Weakley Counties.—On August 13th Dr. Whitman Rowland of Memphis was the principal speaker, his subject being "Sudden Heart Failure." Dr. Chas. Hendley of Paris reported an interesting case.

Davidson County.—The Nashville Academy of Medicine and Davidson County

Medical Society opened its fall meetings on September 3rd. The essayist was Dr. L. J. Caldwell whose subject was "Obstetrical Forceps." Drs. Sam Cowan and Paul Warner opened the discussion.

Five County Society.—The August meeting was held in Lawrenceburg on the 27th. The following papers were read: "Diabetes Insipidus," by Dr. H. C. Boyd; "Report of Cardiac," by Dr. Risdin DeFord; "Chronic Progressive Deafness," by Dr. Bruce P'Pool, Nashville; "Gonorrhea in the Female," by Dr. C. S. McMurray, Nashville; "Interesting Case Reports," by Dr. Paul Faucette, Columbia, "Hypnotism," by Dr. J. P. Keller, Nashville.

Hancock - Claiborne - Union Counties.—At the September meeting Dr. T. B. Sneed and Dr. J. R. Greer were the essayists. The October meeting will be held on the 14th of the month. Drs. Geo. T. Lynch and Jesse Vancel will read papers.

Knox County.—The following papers have been read before the Society during the month of August: "Overcoming the Renal Hazard," by Dr. E. R. Zemp; "Sir William Osler," by Dr. Robert Lynch; An address by Dr. Walter Killiches of Austria; "The Control of Poliomyelitis," by Dr. James A. Doull, of Johns Hopkins. On September 3rd, Dr. H. C. Long read a paper on "Functional Digestive Disturbances."

Montgomery County.—Dr. Richard Barr and Dr. John House, of Nashville, were in Clarksville, August 15th, to address the County Medical Society. The meeting was at the home of the Secretary, Dr. B. F. Runyon who with his father, Dr. Frank J. Runyon, were hosts of a barbecue supper. About fifty members and visitors were present. Dr. Barr discussed "X-Ray and Radium in Gynecology." Dr. House talked on "Treatment of Heartfailure." The event was of much interest and benefit to those attending.

Monroe County.—The October meeting will be held at Tellico Plains on the 8th. An

interesting program has been prepared and a good attendance is anticipated.

Roane-Loudon-Monroe Counties.—About 40 physicians were present at the August meeting of this Tri-County Association. The program was well prepared and the whole day's proceedings were profitable to all present. The following papers were read: "General Anesthetic," by Dr. G. E. Wilson, Rockwood; "Infant Feeding," by Dr. John McCollum, Vonore; "About Medicine," by Dr. J. J. Harrison, Loudon; "The Thyroid Problem of Medicine and Surgery," by Dr. Herbert Acuff, Knoxville; "About our Tri-County Meetings," by Dr. J. A. Hardin, Sweetwater. After dinner talks were made by Drs. Victor G. Williams and John Haskins of Chattanooga, and Drs. Robert Wood and H. E. Christenbury of Knoxville.

Sevier County.—The local society reorganized at the August meeting and elected the following officers: Dr. Ashley Ogle, President; Dr. O. H. Yarberry, Vice-president; Dr. R. J. Ingle, Secretary and Treasurer; Drs. J. B. DeLozier, J. W. Ogle and J. Walter McMahan, Censors. A special program is planned for the September meeting with Dr. McMahan as the essayist. Resolutions were passed in memory of Dr. J. B. Housley of Kodak.

Sullivan-Johnson Counties.—Drs. S. R. McDowell and F. L. Moore, of Blountville, were hosts of this society at its meeting August 2nd. About thirty physicians were present. Dr. George Wiley, of Bristol, related some experiences in his practice of medicine, dating back to 1875. Dr. J. H. Hodge of Kingsport read a paper on "The relation of Nasal Pathology to Asthma and Hay Fever." Dr. E. H. Keener of Kingsport read a paper on "Rural Obstetrics."

Robertson County.—The Robertson County Medical Society held its monthly meeting at the home of Dr. G. R. Jones in Or-

linda. The following doctors from Nashville were present and appeared on the program: Paul DeWitt, Clinton E. Brush and W. H. Witt. At noon a barbecue luncheon was served under the supervision of Mrs. Jones, and the program followed with Dr. J. S. Freeman, president, presiding. Dr. DeWitt read a paper on "Caesarian Section." "Colonic Toxemia" was the title of Dr. Brush's paper. Dr. DeWitt's subject was "Differential Diagnosis of Some Thoracic and Abdominal Conditions." The next meeting of the society will be September 17th with Dr. J. W. Thomas in Cross Plains.

Shelby County.—On August 6th Dr. Robert Mann presented a paper on "Some Gall-Bladder Problems." Case reports from Drs. L. W. Haskell and F. W. Smythe. A discussion of the causes of failure in hayfever treatment was held by Drs. A. M. Goltman, W. C. Colbert, J. P. Henry, Battle Malone and R. F. Mason.

Tri-County Society.—Readers of our pages are no doubt impressed by the number of united societies that are reported each month. We even have one very active "Tri-County" society which covers four counties. We have some counties which unite for scientific programs during the summer only. Some meet quarterly, some monthly. Some counties have their own meetings monthly and join with their neighbors at regular times. The latest combination is Chester, Decatur, Henderson Tri-County Society, which was organized August 8th. Dr. J. L. McMillan of Decaturville was elected president and Dr. J. F. Goff of Lexington became the Secretary-Treasurer. The second Thursday was fixed as the meeting date. The September meeting will be held in Henderson. At the August meeting Dr. J. E. Powers read a paper on "Colitis." There are 32 doctors in these three counties and we are sure the new combination will soon become one of the best societies in the state.

NEWS NOTES AND COMMENTS

Six Montgomery County doctors attended the Christian County, Kentucky, August meeting. Dr. W. E. Gary entertained the Society. About fifty guests were present. Drs. James Stites and Frank M. Stites, both of Louisville, presented the scientific part of the program.

Dr. C. F. Chumley has located in Knoxville. His office is in the General Building and his practice limited to surgery.

Dr. R. L. Witherington, of Lebanon, has located in Jackson.

We read recently of a doctor who used an airplane in making a call on a patient. A distance of 71 miles was covered in 32 minutes. We may show that we are a trifle slow when we say we are glad another doctor made the call.

Dr. Frank B. Kimzey, of Union City, was slightly injured recently when his roadster collided with another car.

More than 60 per cent of the space in Knoxville's new medical building has been taken. The building will be completed in November.

Dr. J. B. Thielen left Knoxville early in August for several weeks at the Mayo Clinic.

Dr. John L. Jelks and Dr. Charles C. King announce their association as Jelks and King. Practice limited to abdominal surgery and procto-enterology. Medical Arts Bldg, Memphis.

Dr. Glenn R. Walker has recently opened his office in Austin Texas, 1007 Norwood Building.

On July 28th Dr. and Mrs. J. R. Gott, of Murfreesboro, were injured when their car was wrecked between Murfreesboro and Woodbury.

Dr. J. B. Shoun, of Elizabethton, was reported sick for a few days last month.

After several weeks in a Nashville Hospital, Dr. J. B. Cox, of Huntingdon, was able to return to his home.

Dr. W. S. Austin has been appointed visiting physician for the Tennessee School for Deaf.

Drs. Agnew and Thomison of Dayton moved into their new Cedar Hill Hospital in August.

Dr. Frank A. Faulkner has been appointed medical director and football team physician at the University of Tennessee, Knoxville.

Dr. George D. Boone, Jr., is to be associated with the Wiggins and Burrus Clinic at Paris.

We follow the example of several newspapers in quoting an editorial from the *Nashville Tennessean* of July 29th.

RURAL PHYSICIANS

For several years the increasing scarcity of physicians in the rural sections of this state has constituted a serious problem. Nor is it a state-wide problem, but the same situation exists in other sections of the country. Various remedies have been proposed. In some of the rural communities of New England, where the shortage of physicians is acute official subsidies have been voted to the resident physician. In other places, and this has occurred occasionally in Tennessee, the citizens have signed agreements pledging a living income to a resident physician. Despite all these efforts, however, the shortage has increased and there are counties in Tennessee today where it is said that the youngest physician is more than forty years of age.

This situation produced a demand in the legislature of Tennessee only a few years ago that the standards at the medical college of the University of Tennessee should

be materially reduced. It was insisted by the proponents of the measure that by making it easier and cheaper for medical students to receive their professional education more of them would be encouraged to become physicians. While realizing the gravity of the situation Governor Peay was convinced that the remedy proposed would be infinitely worse than the disease which it was intended to cure. He succeeded in defeating this unwise legislation and as a result the graduates of the medical college of the state university must complete a course that meets the higher requirements of the profession. It is better to have fewer qualified doctors than to have a large number without that foundation that would equip them for real service to the people.

The medical college has made a determined effort to enroll Tennesseans with the hope that when they graduate they would return to their homes and give the people the benefit of their education and equipment. It should be gratifying to know that this movement has met with substantial success. In 1921 four Tennesseans enrolled in the freshman class at the state medical college. When the term opens this fall it is stated that there will be approximately 90 Tennesseans in the freshman class. The further encouraging statement is made that a steadily increasing proportion of the enrollment in this institution comes from the young men of this state. Not all of them will, of course, practice their profession within the borders of Tennessee, but we may reasonably expect that a much larger per cent will do so that would be the case if the classes were made up largely of non-resident students. Since this school is supported by the taxpayers of the state it is a wise and wholly justifiable policy upon the part of its authorities to give preference to the students from Tennessee.

The twelfth annual meeting of the American Dietetic Association will be held in Detroit, October 7-11. Dorothy Knight Hassler is the national chairman of publicity and those interested in the meeting can address her at Room 1118, 25 East Washington Street, Chicago.

TENNESSEE VITAL STATISTICS FOR 1928

The annual bulletin of vital statistics recently issued by the Tennessee Department of Public Health should be of interest not only to those engaged in public health work but to the general practitioner, who may find in it material for comparison of his individual experience with that of the profession at large.

During 1928 the recorded general death rate in Tennessee was 12.6 per 1,000 population. The death rate for negroes, being 20.7 per 1,000, was nearly twice as high as the rate of 10.8 per 1,000 for white persons. These rates, while slightly higher than the rates for the year 1927, are about the same as have been experienced during the last few years. The rates for specific ages and diseases are somewhat more instructive than the general rates.

Deaths of infants during the first year of life numbered 3,963 or 77.6 out of every 1,000 born in 1928. This rate is higher than that of 1927, but much lower than the rates of a few years ago. About one-half of the deaths of infants under one year of age took place during the first month of life and were caused by conditions which can be ameliorated only by better pre-natal care.

The need for better pre-natal care is even more forcefully brought out by the fact that in 1928 the death rate of mothers from causes attendant upon pregnancy and parturition was 8.2 per 1,000 births—a rate which has been equalled only three times and never exceeded during the period for which we have records. The United States as a whole have the unenviable distinction of one of the highest maternal death rates in the world; and in Tennessee there has been no appreciable tendency toward improvement of the situation.

Mortality from typhoid fever was the lowest in the history of the state, being at the rate of 13.9 per 100,000 population. In 1917 the rate was 38.3. Nevertheless, it is well to bear in mind that there is still a great deal of room for progress against the typhoid bacillus, as there are states in the Union where the toll which it exacts is

less than one-eighth as high as it is in Tennessee.

Owing to unusually prolonged high water in the Mississippi, deaths from malaria were noticeably more numerous in 1928 than in 1927. This, however, represents the effects of an abnormal season, and it is reasonable to expect a continued decline in the incidence of disease.

Deaths from smallpox are now very rare in Tennessee, but the number of cases reported every year indicates that universal vaccination at sufficiently frequent intervals is still an ideal and not a reality. In 1928 there were 825 cases and five deaths, as compared with 648 cases and three deaths in 1927.

The whooping cough death rate of 5.3 per 100,000 population in 1928 was the lowest on record. Diphtheria, however, claimed more victims than during the preceding year, the death rate being 8.4 per 100,000 population. Although mortality from diphtheria is now much lower than it was a decade ago, there has been no net reduction of the death rate since 1925.

Tuberculosis continues to be a health problem of unusual magnitude in Tennessee. The death rate of 134 per 100,000 population for all forms of the disease is very much higher than that of the country as a whole.

The Bulletin of Vital Statistics, which is now published annually, contains detailed statistics of births and deaths for the entire state and a summary of the more important data for each county and each of the six chief cities. Copies are distributed free of charge by the State Health Department.

The American College of Surgeons will hold its nineteenth annual Clinical Congress in Chicago, October 14-18. Headquarters will be at the Stevens Hotel. The Hospital Standardization Conference will consist of morning and afternoon sessions on Monday to Thursday inclusive. There will be a series of clinical demonstrations in the various hospitals of Chicago by leading surgeons. There will be on the program a number of distinguished surgeons

from Europe. Chicago is easily accessible to Tennesseans and there should be a large attendance from Tennessee at this congress.

THE AMERICAN BOARD OF OTOLARYNGOLOGY

An examination was held in Portland, Oregon, July 8th, during the meeting of the American Medical Association. Thirty-seven applicants appeared for examination with 11 per cent failures. The next examination will be given on Monday, October 21st, in Philadelphia, preceding the opening of the meeting of the American Academy of Ophthalmology and Otolaryngology in Atlantic City. Prospective candidates for certificates should address the secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska, for proper application blanks.

Some 4,446 new doctors were graduated during the year ending June 30, 1929, according to figures just made public by the American Medical Association.

Of these, 66.4 per cent held collegiate degrees as well as medical, as opposed to only 15.3 per cent in 1915. All the better medical schools are requiring two or more years of college work for admission, a condition which brings more students within reach of the combined courses for the B.S. and M.D. degrees.

Only 214 of the new physicians are women. The total number of women studying medicine during the past year was 925, or 4.43 per cent of all medical students in the country.

Eleven medical colleges now require a fifth year of internship in an approved hospital or clinical work before the medical degree is granted.

The JOURNAL has been notified of two rather desirable positions for young, recent graduates of medicine. These positions carry reasonable compensation and offer opportunity for definite and rather rapid advancement. Those possessing the necessary qualifications will please communicate with the JOURNAL office.

ABSTRACTS OF CURRENT LITERATURE

ANESTHESIA

By Hugh Barr, M.D.

Medical Arts Bldg., Nashville

Oil-Ether Colonic Anesthesia: Clinical Experience with More Than Five Thousand Cases. James T. Gwathmey, M.D. *New Journal A. M. A.* August 10, 1929.

The author describes experiments with dogs in his preliminary work, finding that this method of anesthesia without morphine was a failure, with morphine there was complete anesthesia with no alarming symptoms. He found that ether is evaporated at a constant rate.

In humans it has passed the experimental stage and is used routinely for selected cases in many hospitals. Special indications are in the alcoholic or obstetrical patients, brain surgery—hyperthyroidism, all operations on respiratory tract, head, neck, chest—bronchoscopy, etc. Contra-indications are pathologic conditions of the lower bowel, as colitis, hemorrhoid, etc.

If anesthesia is too light a hot towel is placed over the nose and mouth to insure rebreathing, or supplementing by a few drops of choloform or ether, on mask, or ethylene or nitrous oxide, or an additional amount of the oil-ether in rectum. If anesthesia is too deep—open airway, remove mixture, give oxygen and carbon dioxide.

He describes the technique which involves several preliminary enemas—preliminary hypodermics of morphine and the injection of the mixture which is composed of ether 4 to 6 ounces, olive oil 2 to 3 ounces and paraldehyde one drachm.

Among his conclusions he states that it is non-irritating, post-operative ether-pneumonia never occurs, is safe, is indicated when inhalation of anesthesia is contra-indicated, the patient awakes in a pain-free state, is always under control, undesirable symptoms slower in developing and there is more time to correct them. It is a matter of time and technique and is contra-indicated in diseases of the rectum.

CLINICAL PATHOLOGY

By R. H. Monger, M.D.

Medical Building, Knoxville

Brucella Abortus in Milk Supply as a Source of Agglutinins in Human Sera. Merrill J. King, M.D., and Dorothy W. Caldwell, M.S. *Am. Jour. Med. Sciences.* July, 1929.

The authors studied 851 patients and 156 staff members in a sanatorium using raw milk, 91 or

9 per cent showed abortus agglutinins when their sera were diluted 1 to 15 or higher. Twenty-four of the 91 had agglutinin titres from 1 to 45 to 1 to 3200. Their conclusions were that individuals with lowered resistance who drink raw milk infected with *Brucella abortus* may develop agglutinins in their blood serum with or without the manifestations of appreciable clinical symptoms of undulant fever. The presence of abortus agglutinins in human serum is evidence of infection with *Brucella abortus*. The agglutinins may persist in the serum for months or years after the recovery of the patient. *Brucella abortus* may be present in small numbers in the milk of infected cows but the organisms may be eliminated for several years. There was complete lack of porcine infection in their herd. The correlation between the periods of *Brucella abortus* infection of the milk supply and the occurrence of agglutinins in the sera of the patients indicates a bovine origin of the cases of undulant fever reported in this study. The presence of *Brucella abortus* agglutinins in the blood sera of cows does not determine whether they are discharging *Brucella abortus* in their milk. In a herd of 151 animals, no evidence was obtained of the infection of the milk of cows whose sera agglutinate at 1 to 60, while cultures of *Brucella abortus* were obtained from the milk of only 23 cows out of 56 with titres of 1 to 120 or higher. *Brucella abortus* was not isolated from the blood or from the urine of infected cows.

Undulant (Malta) Fever—Isolation of the Brucella Organism from the Stools. Harold L. Amoss, M.D., and Mary A. Poston. *Jour. A. M. A.* July 20, 1929.

The authors were stimulated by the idea that a review of the literature showed no reports of isolation of the organism from the stool. In positive cases of the Johns Hopkins Hospital methods were devised for isolating them from the stool. Methods used for isolating the typhoid-dysentery group were applied to the *Brucella* infection. A method of concentration by agglutination with specific serum was applied and parallel cultures by this method and by the usual planting on eosin-methylene blue plates resulted in the recovery of the organisms from twenty daily consecutive specimens of stools by the former method and completely negative results by the latter. Detailed method for culturing from the feces is described. In twenty experiments the patients own serum known to agglutinate *Brucella melitensis* strain was used to concentrate the fecal organisms. In sixteen experiments the polyvalent antimelitensis serum produced by Mulford was employed with equal success. The authors are of the opinion that the members of the *Brucella* group occur in large numbers in the stool, but it is well known that growth on artificial mediums is slow at first.

For example, the growth in positive blood cultures does not in some cases appear for nine days. There is little evidence that *Brucella* infection is spread from man to man by the organisms eliminated in the stool, yet with a method of isolation of the organisms from the stools it becomes possible to adduce epidemiologic data heretofore unattainable, and the method may be found useful in diagnosis in cases in which no agglutinins are detectable in the serum and the blood culture is negative.

GASTRO-ENTEROLOGY AND PROCTOLOGY

By Edward Guy Campbell, M.D.
1109 First Natl. Bank Bldg., Memphis

Chronic Ulcerative Colitis. Result of Treatment in Five Cases. Edmond Horon and Joseph Horon. J. A. M. A. July 27, 1929.

The authors have made a review of the literature on this subject, including the works of Wilks, Lockhart Mummery, Bassler, Yeomans, Bargens, Hewes, Rosenow, Stone, Chisholm, Soper and Wendkos and report five cases treated by them, using vaccine and bacterial filtrate after the method of Bagen and Rosenow.

All of these cases showed marked improvement upon this plan of treatment, as evidenced by the disappearance of the symptoms, healing of the ulcers in the upper rectum and sigmoid, gain in weight and in one case where an X-ray examination was made, a widening of the lumen of the colon with a return of haustration was seen.

In the treatment of these cases, no medication but the vaccine and bacterial filtrate was used.

INTERNAL MEDICINE

By R. B. Wood, M.D.
Medical Building, Knoxville:

The Utilization of Fatty Oils Given Parenterally (The Journal of Nutrition, May, 1929, Vol. 1, No. 5. By Martha Koehne and Lafayette B. Mendel.)

The authors give briefly a review of the important work done on the injection of fat through the many different routes of administration, including chemical analysis of blood before and after injection, nitrogen balance studies, and histological examination of tissues injected.

In the work of the authors use was made of two animal and two vegetable fats, butter, coconut, cod liver and peanut oils.

The conclusions reached in regard to cod liver oil were that vitamins A and D in the oil could be utilized by young rats when the oil is injected parenterally. That the oil has toxic effects can

be seen in the deterioration of the physical condition of animals injected. The body responded to the oil injections as to any foreign object. The oil is of little or no value from the nutritive standpoint.

Parenteral injection of butter fat will protect young rats deprived of vitamin A. No tissue reaction was met, though utilization of the oil by adult rats was very small if any. There was no evidence of its nitrogen sparing effect.

Cocoonut oil seemed to be more readily absorbed, caused no reaction locally or generally and seemed to have a slight sparing effect on protein catabolism.

The conclusion in regard to peanut oil was there seemed to be no evidence of any nutritive value.

One must conclude then that, from the energy standpoint and from the viewpoint of nutrition, there is no help to be derived from the injection of oils parenterally.

The utilization of vitamins A and D through this avenue would hardly justify the method of administration. There are yet, as the authors state, many sides from which this investigation may be approached, as the influence of high protein and low calory diet or the effect of increased metabolism on the utilization of the different oils.

OBSTETRICS

By James R. Reinberger, M.D.
416 Medical Arts Bldg., Memphis

The Cervix in Labor. By Leon S. Loizeux. July, 1929. American Journal of Obstetrics and Gynecology.

The author bases his study on 557 consecutive private cases personally observed, Fifth Avenue Hospital. He discusses the problem of the cervix in difficult or prolonged labors, in which a non-dilating, slow dilating or incompletely dilated cervix is the major factor.

He assumes that cervical dystocias may originate: (1) In cervical pathology per se; (2) in abnormalities of the forces whose function it is to accomplish cervical dilatation; (3) nervous or psychic phenomena and the influence on the dilatation zones; (4) combinations of two or more of the above mentioned factors.

Loizeux discounts the majority of cervical dystocias due to cervical pathology itself and says that if the pelvis is normal, presentation and position good, membranes intact and hard contractions, that the cervix will usually dilate.

So far as the forces are concerned, he is concerned only with keeping the bag of waters intact, because the fluid is really the factor that brings about pressure to cause dilatation. He mentions retraction and contraction rings, which in the majority of cases result from premature rup-

ture of the membranes, subsequently allowing the uterine wall to conform to the child. A brief mention is made of over-distention from any cause or fibroid tumors which limit the normal transmission of the uterine contraction.

He is greatly inclined to believe that the nervous and psychic elements influence the dilating forces and prohibit or delay cervical dilatation. A generalized nervous tension, fear of pain, or exaggerated sensitiveness to pain and its subsequent psychic shock may produce a localized spasmophilia of the cervix and lower segment. As an example a bag has been inserted, dilatation is completed, bag expelled, but the cervix clamps down.

And lastly a combination of two or more factors such as; a pathologic cervix associated with primary inertia, in a nervous, tense and fearful patient.

His treatment is based on the recognition of the above factors. He is absolutely opposed to any set rule of radical treatments such as: routine induction of labor, bagging, version, promiscuous caesarian section or any other routine radical procedure. He is likewise opposed to radical conservatism of letting the patients labor on and on with the hope that nature will solve the problem.

He is an advocate of giving sedatives to overcome the so-called nervous and psychic states and is sure that morphine or in combination with magnesum sulphate, or hyoscine will pacify many of these cases, will alleviate the pain and will relax the lower segment. He permits his patients to labor a reasonable length of time and when termination is advisable that the operation should be done at one time. The majority of the difficulties are encountered in the cervix; therefore, the problem is to remove this barrier. Instrumental dilatation has been long relegated to the past; bags are becoming of less value all the time, for they do not prepare properly the lower segment for delivery; manual dilatation is occasionally used to wipe away the remaining portion of the cervix, but is never used until the cervix is from four and half to five fingers. Therefore, he advocates multiple incisions of the cervix followed by either forceps or versions.

He discusses this procedure with much credit to himself, in that he stresses that the cervical canal must be completely obliterated. The incisions may be made at 10, 2 and 6 o'clock to be repaired by interrupted chromic No. 2 sutures.

He closes his discussion by emphasizing two methods of procedure, neither of which are new: (1) careful management of the first stage with conservation of the mind and body; (2) more frequent resort to transperitoneal caesarean section when the cervix is not completely effaced, and multiple incisions (Dührssen's incision) when the cervix is effaced, but the external os is not dilated and immediate delivery of the baby.

The reviewer has been impressed for several years with this type of cervical dystocia and has been tempted to write such an article, advocating absolutely the treatment that has been incorporated in this paper. He is quite sure that if the proper sedatives are given during the first stage of labor that most of the labors will be actually shortened, rather than lengthened as is the popular belief. After careful observation in those cases where the cervix has made no progress towards dilatation for three or four hours after partially being dilated, with a beginning edema, that multiple incisions, either bilateral or quadrilateral, has advantage over any other method of dilatation. Many forceps would be made much easier and quite often an after-coming head will come through much easier with less damage to the baby. After all, if the pelvis is normal most brutal forceps that most incomplete versions results in simply brute strength against the cervix, until it tears. If the baby's head can stand this brunt, of course it survives; but, unfortunately, brain injury has resulted many times; but it is assumed that the baby was asphyxiated rather than not being able to withstand the forces applied. The reviewer deems this one of the most timely papers that he has read in a long time and trusts that those interested in obstetrics will study the article.

NEUROLOGY and PSYCHIATRY

By H. J. Hayes, M.D.

899 Madison Ave., Memphis

The Role of the Sympathetic Nervous System in Painful Diseases of the Face. Max Minor Peet, M.D., Ann Arbor, Mich.

Peet summarizes as follows: The term atypical neuralgia is unsatisfactory for two reasons: the pains are not neuralgic in character, and a number of unrelated conditions are probably grouped under the one designation. Unless of central origin, pain referred to the face must involve the trigeminal, the facial or the sympathetic nerves. The peripheral trigeminal tract has been eliminated from consideration by the persistence of atypical neuralgic pain after section of the sensory root of the gasserian ganglion.

One type of so-called atypical neuralgia should be considered of central origin, the lesion being probably located in the trigeminal tract in the medulla or the pons. Sensory fibers from various nerves, especially the vatus, may be incorporated in certain sympathetic nerves, although proof of such association is lacking. If found, they will furnish an explanation for the transmission of painful sensations from the blood vessels. Only in the gross anatomic sense can the sympathetic system be considered sensory.

Atypical neuralgic pain can be of sympathetic

origin only if such pain is due to vasomotor spasm, since this system carries only efferent impulses. Certain observations, while not conclusive, suggest that some types of atypical neuralgia are of this origin. Somewhat similar pains, namely, those of vascular disease of the extremities, are certainly of sympathetic origin. The reception of the painful sensation, however, must be transmitted over sensory nerves.

The Nerve Supply of the Cerebral Blood Vessels, a Histologic Study. George B. Hassin, M.D., Professor of Neurology, College of Medicine, University of Illinois; Histologist to Illinois State Psychopathic Institute, Chicago.

Hassin summarizes as follows: (1) The blood vessels of the pia are rich in nerve fibers; (2) the vascular nerve may be single, or in bundles; they are mostly naked, that is, devoid of a myelin cover; (3) the blood vessels of the cerebral paranchyma, as well as the pail capillaries, are devoid of nerve fibers; (4) the nerve fibers are especially abundant at the base of the brain where they are mixed with chromatophores; (5) the pia dominates the cerebral circulation not only by supplying the vessels with blood, but also, partly at least, by controlling their activity (contraction and dilation); (6) the cells of the adventitia of the cerebral capillaries are practically identical with so-called Rouget cells. These are not muscle, but connective tissue cells and have nothing to do with the capillary innervation.

OPHTHALMOLOGY

By Robert J. Warner, M.D.
Doctors Building, Nashville

The Importance of the Early Treatment of Squint. C. H. Sattler. *American Journal of Ophthalmology.* August, 1929.

Amblyopia must be prevented by early stereoscopic training. In the periodic stage of strabismus in seven children, diplopia with good vision of each eye was found. When the strabismus had become continuous one eye became amblyopic. The amblyopia can be cured almost without exception by complete and prolonged occlusion of the better eye. The ordinary eye patch fails to produce this result and a mastisol bandage (a German liquid adhesive) is found necessary. Correction of refraction, combined with occlusion of the better eye as practiced by the author, was successful in bringing about vision of 0.5 to 1.0 in eighty-nine children, occlusion having been found necessary for one to six weeks in those of one to two years, for one to three months in those of four years, and for one to three years in those of eight to twelve years, depending on the duration of the amblyopia. Cases with eccentric fixation

are the most difficult, but in thirty-five out of fifty-two cases central fixation was secured, one case necessitating uninterrupted occlusion for one year. The better eye became amblyopic in three cases only but recovered under occlusion of the fellow eye. Once the amblyopia is cured early stereoscopic training will prevent a relapse. For convergent strabismus of less than twenty degrees the author employs prisms in combination with the spherical correction, and the best results are obtained with those showing correct localization of the double images and of the binocular after-images. Duction tests are helpful in checking up on the degree of binocular single vision present under the use of prisms. Out of ninety cases of convergent strabismus fifty-nine proved to possess binocular single vision under the use of prism corrections, and eighteen of them were slowly found to require weaker and weaker prisms, while some dispensed with them permanently or temporarily. The stereoscopic pictures worked out by Sattler with the aid of an artist have the advantage of interesting and holding the attention of children of three to four years.

PEDIATRICS

By John M. Lce, M.D.
Doctors Building, Nashville

The Status of the Therapeutics of Irradiated Ergosterol. Alfred F. Hess, M.D.; J. M. Lewis, M.D., and Helen Rivkin, B.A. *The Journal of the A. M. A.* August 31, 1929.

Since the remarkable antirachitic property of irradiated ergosterol was reported three years ago, all writers have agreed that it is a most powerful remedy for the prevention and cure of rickets, and it is thought by some to be just as much a specific in this condition as quinine is in malaria. The author's experience during the past year has confirmed the observations made by numerous others. Over a period of several months they noted the effect of irradiated ergosterol in a large number of infants ranging in age from 3 to 9 months. These cases were checked clinically, roentgenologically and by blood chemistry. In practically every full term infant rickets was prevented, though an occasional baby did develop slight evidence of the disease. Premature babies required larger doses of the drug, and even with such doses, rickets was not entirely prevented in some cases.

Excessive amounts of irradiated ergosterol have resulted in loss of appetite, excessive deposits of calcium in the tissues and a withdrawal of inorganic salts from the skeleton. However, since the toxic dose is several thousand times the therapeutic dose, this preparation may be used safely if prescribed with the same precision that is used

with any potent drug. The outstanding manifestation of overdosage is hypercalcemia and is usually preceded by a marked loss of appetite. Cod liver oil given in excessive amounts may produce the same result. The authors feel that while in the summer months irradiated ergosterol is not needed if the patient receives the benefits of the sun's rays, it may be given in appropriate dosage without danger of hypercalcemia. Hyperphosphatemia may develop as a result of giving this drug, but it is of no clinical significance.

While the authors have used this preparation only in rickets and tetany, they suggest its possible value in osteomalacia and Paget's disease. Since dental caries is not a manifestation of rickets, no antirachitic agent will prevent or cure it. The drug has not proven of value in the prevention or care of respiratory infections, of anemia or in the healing of ordinary fractures, or in the induction of growth.

The various preparations of irradiated ergosterol differ so in their potency that the manufacturers in the United States have agreed to assay their products so that they have a potency 100 times that of a high grade standard cod liver oil. The dose of these preparations should be 8 to 10 drops daily as a prophylactic for full term infants growing at the normal rate. Premature infants and those growing rapidly should be given 15 drops a day, and the dose should be increased if signs of rickets develop. As a curative measure, 15 drops per day for mild rickets, and 20 drops daily for moderate cases are advised. Since the effect is prolonged after the drug is discontinued, the authors suggest giving it interruptedly or for only a few times a week. If loss of appetite or diarrhea develops the medication should be discontinued temporarily.

Cod liver oil fortified with irradiated ergosterol on the market is about five times the strength of good cod liver oil and has the advantage of combining the fat-soluble vitamin A as well as the antirachitic vitamin. Irradiated dried milk has proven useful as a preventive of rickets, except in premature infants, but is not so good for curative measures. The value of irradiated cereals for prophylaxis and cure of rickets is of no consequence, because they are given in such small amounts during the first year, the age at which rickets occurs most.

ORTHOPEDIC SURGERY

By Robert F. Patterson, M.D.

Acuff Building, Knoxville

Fracture of the Shaft of the Femur. By Willis Campbell. Reprint from *Radiology*. February, 1929.

Campbell relies upon this method, in most cases,

and secures such good results that it should be more generally used. It is as follows:

Patient is placed on an orthopaedic table and traction is made on the good limb to steady it. The fractured limb is flexed forty-five degrees and slightly abducted and moderate traction is used. Then by angulation the fragments are engaged and the limb is straightened and a snug-fitting cast is applied from the axilla to the toes on affected side—and to the knees on the well side. The manoeuver is repeated if necessary a week later if the X-ray reveals slipping of fragments. This is done under direct observation with the fluoroscope. This treatment is not applicable to fracture near the knee or near the hip.

In a series of 77 of older children he secured excellent results in seventy-four, and good in three. In 71 adults the results were:

52, excellent, 16, good; 3, fair; total, 71.

This compares favorably with any series we have seen by any method. The method requires more than ordinary skill with plaster.

SURGERY — GENERAL AND ABDOMINAL

By John L. Dies, M.D.

1213 Exchange Building, Memphis

Inguinal Hernia. The Results of Treatment by Simple Excision of the Sac. Turner, Philip and Eckhoff, Nils, *Guy's Hospital Reports*, 79, 234-240. April, 1929.

It may be stated that simple excision of the sac is an exceedingly satisfactory operation in children and young adults, and that in carefully selected cases it may often be employed in middle-aged patients. The size and duration of the hernia, the muscular development and the degree of secondary weakness will be the deciding factors.

In patients who are approaching or possibly have passed middle age the muscular and aponeurotic structures limiting the inguinal canal will often be found permanently weakened and stretched. Owing to the age and general condition, recovery of tone in the damaged muscles is scarcely to be expected, and hence in such cases there is bound to be a certain proportion of recurrences. In the present series of 17 operations there were two recurrences which, considering the type of patient, do not seem to be excessive. A similar comment may be made on the results of the operations for direct hernia.

A consideration of these figures emphasizes the importance of operating in childhood or in early adult life as soon as the hernia has been diagnosed, and before it has been present long enough to cause secondary muscular weakness which will permanently impair the strength and security of the inguinal canal.

The Chemical Obliteration of Varicose Veins. A Clinical and Experimental Study. Howard M. Kern, M.D., and Lewis W. Angle, M.D. *The Journal of the American Medical Association.* Vol. 93, No. 8. August, 1929. Pp. 595-601.

We are convinced that the injection treatment is the method of choice as opposed to operative treatment, both from the standpoint of danger and also from the standpoint of time lost.

There are four contra-indications to this treatment: (a) active or latent phlebitis; (b) obstruction to the deep veins; (c) arterial disease of the extremities (Raynaud's disease and thrombo-angitis), and (d) cardiac disease.

Pregnancy, in itself, is not a contra-indication, but as the varices are greatly improved after delivery, we believe it is best to wait.

A mixture of 50 per cent dextrose and 30 per cent sodium chloride is an ideal solution to use for obliterating the veins.

Injections should be made in the horizontal position, if possible.

If the internal saphenous vein is varicose above the knee as well as high as is necessary to insure a cure of the varices of the leg.

There is little or no danger in the treatment if it is done by careful operators with a thorough understanding of vascular conditions.

UROLOGY

By Tom R. Barry, M.D., F.A.C.S.,
and F. K. Garvey, M.D.
Medical Building, Knoxville

"Spina Bifida Occulta: Its Relation to Dilatations of the Upper Urinary Tract and Urinary Infections in Childhood." Mertz, H. O., and Smith, L. A. (Abstracted by John P. O'Neil, M.D. S. G. and O., Vol. XLIX, No. 2, August, 1929).

The authors emphasize that the interpretation of a supposed embryological defect in the lumbosacral posterior laminae requires special care. They cite Brickner's review of the various conditions which may accompany spina bifida occulta and cause remote neuromuscular symptoms.

Symptoms are dependent upon compression of the cord and its roots and degeneration of the

cord tracts. This explains why spina bifida occulta is sometimes associated with symptoms and sometimes is not. The urinary symptoms most frequently ascribed to spina bifida occulta is urinary incontinence, usually enuresis. Bladder retention with or without loss of control of the vesical sphincter has also been reported.

The authors urge close cooperation between the urologist, the roentgenologist, and the neurological surgeon in the study of a case of spina bifida. They report nine cases and list an extensive bibliography.

"A Clinical Consideration of Urinary Antiseptics." Kaufman, Louis Rene, M.D. *J. Urology*, Vol. XXII, No. 2.

He defines urinary antiseptics as those substances intended to destroy bacteria in the urinary tract either indirect when administered internally, by mouth, or intravenously, or by direct local application.

Out of a total of 201 cases of acute and chronic infections of kidney, urine and bladder cases were selected at random from those in which the pathology was best understood, and the following forms of therapy instituted. Their concessions briefly are:

1. That general urinary anteseptis has limitations and there must be a clear conception of the pathology present in order to treat it scientifically and get clinical results.

2. That we must look to not only a chemical sterilization of bacteria, but to a physiological sterilization, particularly in combating pyrexia, toxemia, and renal failure. This involves use of water, alkalines, acids, and particularly maintenance of good drainage, etc.

3. Urinary antiseptics are scientific in both acute and chronic diseases, if properly selected and instituted. Urotropin is valuable, if acidified, especially used as a prophylactic against infection in instrumentation, simple acute infections, and in general routine post-operative care. He prefers to use it intravenously as uritone, or salihexin.

Hexylresorcinol is the nearest approach to a scientific antiseptic. Its drawback is slowness in getting results and the limitation of water and alkalies, which is required. These factors necessitate careful selection of cases.



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INDIVIDUALISM AND CO-OPERATION IN MEDICINE*

W. S. THAYER, M.D., Baltimore
President, American Medical Association

LET me tell you first what a pleasure it is to be with you.

It is twenty-nine years since, at a Tri-State Medical meeting, I spent a few happy days in Memphis. How the years fly! Think of the changes that have come over medicine in those years. Ross and the Italians had just made their discoveries on malaria. Reed and his commission were in the midst of their studies on yellow fever. All our modern serological knowledge with its diagnostic and therapeutic possibilities was in its infancy; complement fixation; the Bordet-Wassermann test; our knowledge of allergy and its relation to the manifestations of disease; that which we know about typhus fever, tick fever, tularaemia, undulant fever; of hookworm disease, of pellagra; of the deficiency diseases; of vitamins; of effective methods of making cultures from the blood which have been of such diagnostic value; the great progress of public medicine; our knowledge of diabetes; insulin; the effect of liver substance in pernicious anaemia and sprue; the increase of our chemical knowledge; the simple, quick methods of chemical study of the blood, and their functional diagnostic value; the development of endocrinology; the advance in our knowledge of metabolism and the convenient methods of estimation of basal met-

abolism with its relation to the diagnosis especially of thyroid disease; the practical application of Roentgenology which was then in its infancy; the multiplication of instruments of precision; the transformation of our powers of investigation of the accessory nasal sinuses, of the genito-urinary tract, of the gastro-intestinal and bronchial tracts through endoscopy in all its forms; the polygraph; the electro-cardiograph—but why go on? It must be impossible to many of us to conceive practice without these aids. How much greater is our power!

But with our increased powers have come increased responsibilities. The art of medicine has been immensely amplified but it has *not* been simplified and the demands on the individual physician are heavier than ever before.

It is as to the influence of this great increase in our medical resources on some phases of practice, especially on the art of diagnosis that I would speak in the few words that I shall say to you today,—the art of diagnosis, that art which gives us the power to identify and comprehend the pathological processes with which we are concerned, their extent and their prognosis.

Prognosis, the oldest of medical arts and one of the most important, depends, as it has always depended, very largely on experience; and let me at the outset insist that

*Read before the Tennessee State Medical Association, Jackson, April 9, 1929.

with all our learning, the element of individual experience properly digested is still and is likely to remain for a long time, a vital element in medical practice.

The art of diagnosis in the modern sense is but a little over one hundred years old, beginning really with Corvisart who, in 1808, brought into practice Auenbrugger's (1761) percussion, and with Laennec who, devoting himself to the study of pathological anatomy which may almost be said to have been born with Morgagni (1765) and Bichat (1801-3), laid the basis for modern physical diagnosis in his discovery of auscultation.

The methods of Laennec gave us power to detect most gross anatomical and many functional changes which may occur in the chest and the abdomen, by the application of our five senses aided only by the stethoscope. One hundred and three years after his death, proficiency in the methods of examination that Laennec left us remains the indispensable basis on which the art of diagnosis rests. He who is not able to rely on his five senses, he who is not able by inspection, palpation, percussion and auscultation to detect or suspect most of the important pathological processes in chest and abdomen, is as a babe in the wilderness to whom all the lights and beacons of modern diagnostic refinement are but as a dancing Will-o'-the-Wisp—a misleading mirage.

To be a good diagnostician there are today, as there always have been, certain necessary fundamentals. A physician must have (1) a good basic knowledge of anatomy, normal and pathological, of physiology and of pathology in its broadest sense.

(2) He must have acquired facility, through training and experience, in the fundamental art of physical diagnosis. This proficiency cannot be acquired in class room, in laboratory or in library. It can come only from practice at first under judicious supervision.

(3) He must have a good knowledge of anatomy, and experience in simple, practical methods of neurological examination which demand physiological knowledge as well as accuracy and close reasoning. These are the foundations which today, as yester-

day, are indispensable for the practitioner of medicine.

No one who has not practised medicine for thirty-five years or more can realize the help that the introduction of improved methods of bacteriological, serological, chemical and physical diagnosis have brought, and especially the blessed relief given to us by Roentgenology. But let us not forget that with all the help they have brought us, not one of these methods has *replaced* the basic procedures of physical diagnosis. All are complementary.

The constant appeal to bacteriological, serological, chemical and physical methods of study, the multiplication of instruments of precision and the delicacy of technique required for the carrying out of many diagnostic and therapeutic procedures in laboratory, consulting room and operating room, have greatly complicated the practice of medicine. True, it is that more and more technical details are being handed over to lay technicians, but, nevertheless, many physicians and surgeons are devoting their lives more and more to the study of special problems or the practice of highly specialized procedures. In some instances, as in Roentgenology and the chemical laboratory, men who have graduated at medical schools may become essentially highly trained technicians.

Now, as I see it, there is no essential difference between the dignity of any two careers to which the practitioner or the student devotes himself with a whole heart. The dignity of a career depends upon the spirit with which a man enters upon it. But one thing is clear, that the most difficult career, that which demands most of him who starts out upon it, is the career of the general practitioner of medicine or surgery. His responsibilities and burdens are immeasurably heavier than those which devolve on most of his colleagues engaged in the practice of the specialties. And while some of the ablest and most brilliant practitioners and surgeons may be found among men devoting themselves to limited special problems, yet too often it is the prospect of a more profitable career and the consciousness of inability to meet the demands of a

more general practice that lead many men who are not the strongest into specialization.

Now, as I have said, any man who hopes to be a good diagnostician must be proficient in the art of physical diagnosis in its stricter sense. And this art is to be acquired only by careful practical instruction in the school of medicine. Here the student, through proper guidance, learns to explore for himself in a systematic fashion and thereby comes to stand on his own feet. Such a man becomes more expert every day he lives so long as the cerebral arteries remain pervious.

Now to my mind two of the serious problems in teaching and in practice today are: (1) The neglect of proper and sufficient training in physical examination in our medical schools, (2) the routine and ill-ordered use of the complementary methods of investigation in practice.

The history of the teaching of physical diagnosis in our schools seems to me to have gone through rather interesting phases. When I started the practice of medicine, in too many of our schools students were taught largely by lectures and were not given the opportunity to gain that self-assurance which comes only with experience under supervision.

Then, for a period, there was a rapid improvement in our methods of teaching, but today again with the immense expansion of our medical knowledge, it has become, in most of our schools, impossible to crowd into the four years a sufficiently detailed training in the simpler methods of physical diagnosis, while at the same time, giving the student the necessary instruction in the greatly broadened science and art of medicine.

Twenty years ago Friederich Mueller, during a visit in Baltimore, spoke very earnestly with me over our methods of instruction, emphasizing strongly that, in his opinion, we were trying to do too much, and that in our efforts to crowd into our four years' course so much instruction with regard to newer methods of precision and newer physiological and pathological conceptions, we were neglecting the simpler

diagnostic procedures which lie at the base of the practice of medicine.

The condition is worse today. In order to reach a proper diagnosis one must proceed in a systematic manner. The first step is the history and the personal physical examination. This carried out, the examiner must seek such supplementary information as is necessary to reach a conclusion. Disorder in one's system of procedure means a disordered mind and confused results. The medical course remains of the same length as it was thirty years ago. The information which must be imparted to the student has increased enormously. In many schools the time given to systematic instruction in physical diagnosis is insufficient. The student must be taught the significance and value of a mass of diagnostic refinements always at hand and in routine use in the hospital, to many of which he may be unable to appeal in his practice.

Too often he leaves the school confused as to the relative importance of the multifarious diagnostic procedures which are open to him, and unable to stand on his own feet.

The same thing is true in modern practice. But here it is, I fear, worse today than it was twenty years ago. Far too often the practitioner turns to some laboratory test or to an x-ray plate before he has properly examined his patient and, what is the most pathetic thing of all, accepts these reports and these plates as something final. *There is nothing final in medicine.* Wherever one goes, to whatever one appeals, the human element always enters in. A proper diagnosis can only be reached by a systematic study by one man. The beginning of that study is the examination of the patient, our acquaintance with him, the taking of a proper history and the making of a thorough physical examination, the forming of an opinion so far as we can make it, the decision as to what further examinations thereafter are necessary. At the bottom of all practice lies the human relation between the patient and the doctor whom he consults. We must often appeal for help to colleagues or technicians who are working in special branches. This cannot profitably

be done in a routine fashion. Everywhere the human element must be considered. It isn't the opinion of *a* Roentgenologist, or *a* clinical laboratory, or *a* rhinologist that the physician should want, it is the opinion of *the* Roentgenologist, of *the* clinical laboratory, and herein lies one of the most unfortunate features of modern practice. If the physician is not able to answer for the man who makes his tests he should accept them in a very guarded manner. Too often a diagnosis of typhoid fever is made on a laboratory report alone, as if that report were something final. I have seen deplorable mistakes made through the blind faith of a practitioner in a report from a laboratory.

And then there is another consideration, a financial consideration. Too often are patients referred in a routine manner to a number of specialists and technicians with little consideration as to the actual necessity of these special studies. One of the most sacred duties of a physician to his patient is to consider the demands on his pocketbook and to put him through nothing more than that which is actually necessary—to distinguish between that which is *desirable* and that which is *necessary*. If one were to make every possible examination and study in connection with every patient, he could spend a lifetime with each one.

As I have said before, he only can profit by the advances of modern medicine who is familiar with his patient as a result of his own examination. Certain of the simpler instruments of precision the physician should learn to use himself—the ophthalmoscope, the laryngoscope, the otoscope as well as the stethoscope. The microscopic examination of a fresh specimen of blood in consulting room or by bedside will tell him far more than any other single examination of the blood. He should have confidence in his rectal and vaginal touch. He should always know why he refers a patient to a colleague. Above all he should never refer a patient to a colleague without proper information as to the story. Co-operation is becoming more and more necessary in medical practice, but to refer a

patient indiscriminately to a number of colleagues without information, and to accept their reports without previous or subsequent discussion of the situation is not to co-operate. To seek and consult a mass of information which should be purely supplementary to a careful physical examination, without or before such examination, is too frequently a disastrously confusing procedure.

I spoke a moment ago of the immense value of Roentgenology. But Roentgenology is so abused in practice today that, for many men, I am sure it would be far better if it had never been discovered.

What is Roentgenology? The study of shadows, the interpretation of which depends wholly on the experience of the observer and on his familiarity as a trained clinician and pathologist, with the story and condition of the patient from whom the plates were made. The physician must learn to read his own plates. The Roentgenologist, if his opinion is to be of value, must be a good clinician and pathologist, familiar with the story and course of his individual cases and of the final results in the cases which he has studied. More than this, in order to express an opinion as to the significance of a given plate he must be familiar with the history and course of this case, and the physical signs shown by the patient. In other words, the Roentgenologist and the physician must play the game together. There is no error greater than the blind acceptance of the opinion of a Roentgenologist who, at least in plates of the chest, if he have no knowledge of the history and physical signs, is at best proceeding on information about equivalent to that which percussion gives to the skilled clinician. The extent to which physicians neglect the proper study of their patients and accept blindly the unaided impressions of the Roentgenologist—often a man of no clinical experience—was sadly evident in France during the war. It was the opinion of a distinguished expert in thoracic disease that, at one evacuating centre, 70 per cent of patients sent home as tuberculous, were at the time of his investigation free from evidence of active or dangerous latent

tuberculous disease. Most seemed to him wholly free from tuberculosis. How many radiologists, after all, are trained clinicians? How many have opportunities to follow their cases to recovery and to necropsy and to confirm their diagnoses? How often do clinicians in sending a patient to the Roentgenologist give him a report on their observations or discuss with him the clinical story and the plates? In most instances percussion reveals the area of increased density as well as does the shadow. Any good clinician can outline the heart by percussion with reasonable accuracy. In the long run, however, the x-ray gives us invaluable diagnostic help and sometimes unsuspected revelations.

Nevertheless, as I said a moment ago, system is all-important in physical diagnosis, and few steps can be more disastrous to the average practitioner than to begin his examination by that which should be the last step, namely by looking at an x-ray plate, whereby he gains preconceived ideas which confuse his normal processes of reason. Heaven knows, I am not blaming the Roentgenologist! The physician too often invites him to speak with a finality which he would not otherwise assume and leads him into bad habits. The custom of reporting on an x-ray plate in terms of pathological lesions rather than objectively, is dangerous and rarely justified, and may lead, as in the following instance, to results that are, to say the least, unfortunate. A woman over thirty years of age, with an evident open Ductus Botalli, lost her voice. There was a paralysis of the left recurrent laryngeal nerve. A Roentgenologist who had had no information and had made no physical examination, sent to the physician a carefully written report with a positive diagnosis of mitral stenosis, distended left auricle and paralysis of the left recurrent laryngeal from pressure.

But the family physician and I, whose percussion outlines were practically superposable over the shadow, knowing the nature of the case, were able easily to recognize the true cause of the pressure, namely, a dilated pulmonary artery which necropsy revealed.

After all, proper interpretation of a plate demands all the information that the clinician can assemble. An x-ray plate or the fluoroscope are a great help, but only to him who knows how to use first his senses in a good physical examination, and later his head in its interpretation, and realizes that to profit by modern physical and chemical methods of study, he must be able first to gain all that his unaided senses can bring him. He must solve his own problems. Valuable as is the x-ray plate one must remember that of itself it may be entirely misleading. On a number of instances I have seen areas of pneumonic solidification detectable by physical examination which failed entirely to cause the usual shadow on the plate, and on one occasion, as I have related elsewhere, Dr. Baetjer and I were able to demonstrate to the class a solid lower lobe in grey hepatization, detected *intra vitam*, alongside of the plate taken at the same time (the day before death) which showed no shadow.

There are few diagnostic signs in medicine. To reach a diagnosis demands careful exercise of our powers of reasoning. We must proceed in an orderly fashion and without preconceived ideas. He who begins his examination by looking at an x-ray plate is very likely to lose his way in his search for an explanation of some unexpected shadow with regard to which he has formed a preconceived idea. He should not approach his x-ray plate before he has acquired that other evidence which he gains from a thorough physical examination.

Precious as an x-ray plate may be, alone, in ninety-nine cases out of a hundred, it is of trifling value compared to that which a careful physical examination may bring. If the physician begins by looking at an x-ray plate he is no longer working with an open mind.

That which is true as to Roentgenology is true as to most of the information which we may gather from instruments of precision and from chemical and bacteriological studies outside of the simple procedures of examination of the urine and the blood which one employs in his own consulting room or laboratory. Of the greatest value,

often, as supplements to our clinical examination, they *replace* nothing: they are purely complementary. They may bring the doctor great consolation; they may reveal to him the unsuspected; they are very likely to mislead him if he has not thoroughly examined his patient.

Greater accuracy in diagnosis is to be obtained only by harder work. Diagnostic signs are few. Short cuts in diagnosis are likewise rare. A positive culture of typhoid bacilli from the blood may be rather strong evidence of typhoid fever, but only if one knows the clinical symptoms and is sure of him who has made the test and of his results; it in no way frees the doctor from the necessary daily care and study of his patient.

The shadow revealed by the x-ray plate may be most consoling and confirmatory of our suspicions, and may reveal the outlines of areas of deep condensation or fluid in the chest, which might not have been found by other means. Alone, it cannot tell us whether or where to put in the needle.

In all steps in practice we must consider the human element.

We cannot practise medicine in a routine manner.

We must choose our consultants. We must inform or consult with our consultants. To demand an x-ray plate without explanation or previous or subsequent discussion of the case with the Roentgenologist, is unfair both to patient and colleague. In the end the matter lies between two individuals, the patient and the doctor whom he consults. The best service that the doctor can render to his patient is still his personal consideration and opinion and advice.

We can not "pass the buck" in medicine.

Immense advances have been made in the last forty years, but few men who practised medicine forty years ago, and knew

men like Reginald Fitz or Edward Janeway or William Pepper or William Osler, would fail to prefer today to be under their care with such apparatus only as they had in the later eighties, than in the hands of one who is unable to detect and localize pathological changes by his eyes, ears and fingers, and turns instead to the reports of the laboratory alone.

A good clinical history obtained by or discussed by oneself with the patient, and a careful physical examination made by oneself, are still the basis of all good diagnosis.

Only one well versed in these methods of diagnosis can find the answer to most questions which come to him.

Only such a man can utilize intelligently the information brought by other procedures.

There are few short cuts in diagnosis.

Desirable as it is that the time may come when our necessary methods of diagnostic study may be shortened, that day has not yet arrived.

The proper training of the student in the fundamental methods of diagnosis, those which he can practise, unaided, with his hands and eyes and ears, unaided save by stethoscope, ophthalmoscope, laryngoscope, otoscope and microscope, is still the most important function of the school of medicine.

Their conscientious employment in daily practice is necessary for him who would be a good doctor.

Co-operation is increasingly necessary in medicine—but intelligent co-operation implies individual responsibility, and a recognition of the like responsibility of those with whom we co-operate.

The best doctor today is still he who can best stand on his own feet.

TREATMENT—INFECTION OF THE HAND*

J. O. GORDON, M.D., Memphis

I DO not presume to introduce anything new in the discussion of this subject, but merely to review certain details that are indispensable in the management of infections of the hand. These details are common knowledge, yet frequently overlooked.

This is an important subject to the industrial surgeon, for the hand is a very precious contributor to industry, and its conservation is a problem with which we are all confronted probably more frequently than any other.

Rational treatment of infections of the hand is based upon a knowledge of the rather complex anatomy of the part, and the pathology with which we are dealing. With this knowledge and a little skill in diagnosis and surgical technique, incisions will be placed carefully, and we can expect restoration to complete function in practically all our cases.

Without it we can expect compensation, loss, and even permanent disability.

It is my intention then to review a few of the common conditions met with, and discuss their surgical treatment with respect to the anatomical and pathological peculiarities of the tissues involved.

PARONYCHIA

This apparently simple infection may very frequently baffle treatment for some weeks, because the pathology is not sufficiently understood. I have seen it affect several fingers on one or both hands and produce disability for a considerable period. The onset is usually a simple infection around a "hangnail" or some unnoticed injury, which if neglected as it usually is spreads along the side of the nail and back to the base, becoming what is commonly known as a "run-around." Within a short time the infection has spread to the matrix at the base of the nail; pus accumulates un-

der the nail where it cannot escape; and the entire nail may be lifted off its matrix and cast off, or at least detached along its entire base.

Because of inadequate drainage this infection persists and becomes chronic, the matrix begins to proliferate freely, and a fungus-like elevation of granulation tissue appears, growing from beneath the overhanging cuticle.

This is not an uncommon picture due to the habit of patients to consider it as unimportant, or due to inadequate treatment by an ill-informed physician.

Once the pathology is understood, treatment is simple: merely to establish adequate drainage for the imprisoned pus under the nail. This is done by placing a longitudinal incision along the outer edge of the nail as far as the sulcus, with especial care to keep far enough out so as not to cut the nail bed or the overhanging cuticle, since if this is done it may result in a permanent split nail when it grows out anew. If only half of the nail base is involved one lateral incision is sufficient; if the entire base is involved a duplicate incision is made on the opposite side. The eponychium is now pushed back with a sponge, and the point of a sharp scissors inserted under the detached edge of the nail. This is cut off, together with as much of the root of the nail as has become separated from the matrix by the pus. It is wise, generally, to be on the side of radicalism, since otherwise secondary operations may become necessary. It is not necessary to remove the distal portion of the nail, if it is not detached from the matrix, as it does not interfere with recovery and is of some use when the inflammation subsides. After removing whatever part of the nail base as is necessary, the elevated flap of overhanging cuticle is packed up and out of the field by a strip of vaseline gauze to insure drainage for a few days. A hot boric acid dressing is applied to the entire finger for a couple of days, and then usually

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a dry dressing will suffice, retaining the vaseline pack longer if necessary. If convenient, it is wise to remove the dressing and expose the field to the drying rays of the sun or ultra violet for several hours each day.

FELONS

Felons are another very common infection of the distal phalynx of the finger. It may follow a trivial injury and frequently no history of trauma can be elicited. The patient first notices a burning pain in the distal phalynx which rapidly becomes throbbing in character and most severe. The distal portion of the finger becomes red, swollen, and very tense with edema. Soon the tenseness is replaced by an induration and later by a fluctuating boggy mass.

The lymphatics in the finger run perpendicular from the skin to the periostium, and the infection thus takes place under the periostium, which is lifted off and necrosis of the bone may ensue.

The treatment of a felon consists in immediate incision into the infected area. Do not wait for fluctuation, for unnecessary pain is endured by the patient and necrosis of the bone will probably have occurred, which will not only prolong convalescence, but may also cause permanent deformity.

The anatomy of the finger pad is peculiar in that radiating columns of connective tissue extend from the skin perpendicularly to the periostium, thus dividing the subcutaneous tissue into a number of closed areas filled with columns of fat.

The incision should therefore be placed so as to drain all of these closed spaces. A bilateral incision the length of the phalynx will usually suffice. It has been recommended by some that the incision should extend in a circular direction around the end of the finger. This probably gives the most perfect drainage, but it leaves a scar at the end of the finger which interferes with the delicate tactile function of that part.

The median flexor incision is condemned for the same reason and especially because it is often extended beyond the base of the phalynx and allows escape of the infection from the closed place to the tendon sheath. It also may cause a subsequent tenosynovitis

of the finger which may spread to hand and even to arm.

A bilateral incision is made just short of the proximal end of the distal phalynx through the periostium. The finger pad can be raised if necessary and a small through and through vaseline pack inserted. If this incision is made early, one is often surprised at the rapid recovery.

LUMPHANGITIS

The greatest difficulty met with in this condition is the diagnosis. It must be differentiated from tenosynovitis and fascial-space infection. Its management, once the diagnosis is made, is just the opposite to these other two conditions, i.e., never use the knife unless there is an absolute surety that there is an accumulation of pus.

Rest, elevation of the hand, and hot wet boric acid dressings with supportive measures in severe cases will usually restore function.

I mention this condition particularly to warn against the very common practice of making one or several incisions in these swollen edematous hands. In my opinion these incisions never do any good and invariably aggravate the infection by opening up new lymphatics and making the process more diffuse. It is not an infrequent occurrence to see these incisions soon followed by a chill and a rise in fever, often to an alarming degree and a subsequent stormy course.

Local accumulations of pus are unusual in this type of infection, but when it does occur, of course drainage is indicated.

TENOSYNOVITIS

This is probably the most important infection of the hand because of the disastrous consequences that can follow delayed diagnosis on mismanagement. This type of infection is difficult to diagnose, especially to the beginner. The swelling and general appearance is very similar to lymphangitis, however, there are cardinal symptoms and signs of this condition that should be kept in mind and will usually reveal the diagnosis, i. e.:

1. Flexion of the finger.
2. Exquisite pain on extending the finger.

3. Exquisite tenderness limited to the course of the sheath. Once the diagnosis is made immediate drainage is indicated, for disaster occurs when the infection remains sufficiently long to destroy the function of the tendon. The tendency of the inexperienced is to be too conservative both in loss of time and by inadequate incision.

Placing the incisions depends upon the fingers involved and the amount of destruction present.

The tendon sheaths of the index, middle, and ring fingers are similar, therefore the incisions are similar. As you can see, the sheath does not extend to the distal phalanx, therefore the incision begins proximal to the distal phalanx and always at the side of the flexor surface, never in the mid line. A clean incision is made the full length of the sheath. The proximal end of the incision will vary with the extent of the invasion in the palm, i. e., if infection has spread to the lumbrical or fascial spaces the incision can extend to drain both. One incision the length of the sheath, rather than multiple incisions on both sides of the finger, is advised.

As you will see illustrated in the diagram, the tendon sheaths of the first and fifth fingers continue through the band across the wrist and above the annular ligament into forearm. Occasionally these sheaths are interrupted at the proximal phalanx. If the finger alone is involved it is important therefore not to open the ulnar or radial sheaths. If the sheaths are continuous and the whole is infected, incise the whole length of sheath up to the annular ligament. If necessary, incise and drain the proximal end of the sheaths above the annular ligament.

Vaseline gauze pack and hot boric acid dressing will facilitate drainage. Hand should be kept at absolute rest if possible.

FASCIAL-SPACE INFECTION

Pus may accumulate in various fascial spaces in the hand. This may occur as primary infection or secondary to lymphatic or tendon-sheath infection, especially the latter. These well defined spaces are five in number:

1. Middle palmar space
2. Thenar space
3. Hypothenar space
4. Dorsal subcutaneous space
5. Dorsal subaponeurotic space

The thenar and middle palmar spaces are by far the most important and most frequently involved in the hand, and will conclude with the discussion of these. These spaces are bounded by thin fibrous sheaths and lie under the flexor tendons. The middle palmar, which is probably the most important, extends from the middle metacarpal bone to the radial side of the fifth metacarpal. The thenar space extends from the middle metacarpal toward the radial side of the hand to about midway between the first and second metacarpals. These spaces are separated from each other by a fibrous septum at the middle metacarpal. There is a weak spot in this septum at its proximal end, and at this point rupture may occur from one space to the other.

We are often aided in diagnosis by the site of the primary infection, for this is one of the most common complications of tenosynovitis of the fingers, especially the second, third, and fourth. Obliteration of the concavity of the hand with slight bulging over one or both spaces and localized tenderness are almost pathognomons. The position of the fingers does not aid much, but it is well to remember that the fingers can be moved with less pain than when they are involved with tenosynovitis. The hardest problem in diagnosis is not in those cases in which the question is only which space is involved, but to know whether the infection has spread from one space to the other. Infection of these spaces can often swell the hand to an immense size.

Once the diagnosis is made, adequate drainage is usually all that is necessary. It is probably better to err upon the side of radicalism rather than conservatism, due to the fact that if the abscess is neglected there is liability of complications in the synovial sheaths, joints, bones, and nerves.

Any method of drainage exposes certain important tissues to injury. It is a question of choosing the least dangerous.

The least injury and the most efficient

drainage of the middle palmar space can be secured by an incision along one of the lumbrical canals leading into this space. Either the one between the fourth and fifth or third and fourth fingers. An incision is started just proximal to the web between the fingers and extended about one to one and one-half inches on the palmar surface. This brings the incision between the tendons. An artery forceps is thrust under the palmar tendons, the blades opened, and satisfactory drainage ensues. A small strip of rubber tissue or vaseline gauze can be used to keep the incision from closing.

To drain the thenar space an incision is made on the radial side of the index metacarpal about an inch in length. This incision is lateral to the flexor group of tendons. An artery forceps is now thrust under the tendons, the blades opened, and adequate drainage ensues. Care should be taken not to pass the forceps beyond the middle metacarpal bone if the middle palmar space is not involved. Rubber tissue or vaseline gauze will insure drainage for several days. Absolute rest and hot moist dressings are necessary until the inflammation subsides, then active passive motion with massage will restore function.

STUDIES IN ALLERGY*

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IN 1902 Von Pirquet proposed the term allergy to the medical profession. It is derived from the Greek *ergeia*, meaning reactivity and *allos*, meaning altered. Various conceptions of its scope are held by different authorities at the present time. In the light of our present knowledge I do not consider it amiss to define allergy as follows:

It is a term used to designate those body reactions which occur without demonstrable antigen-antibody reaction and includes anaphylaxis.

Anaphylaxis means "without protection." While anaphylactic reactions have been proven to be on an antigen-antibody basis yet the phenomena of anaphylaxis and allergy are so similar I think that the term allergy should be used to include both.

This conception of the term allergy is shared by Kolmer, Doerr and others, while Coca believes that allergy should be used to designate only those phenomena which occur without demonstrable antigen-antibody reaction.

Heredity is a dominant factor in allergic disease and follows the Mendelian Law. In an analysis of 200 cases which I will discuss later I found the family history positive in

54.5 per cent of cases. Offspring from allergic parents inherit a tendency to become hypersensitive, but not necessarily the specific hypersensitiveness of the parent or parents. For example, a child born of parents who have hay-fever may not develop symptoms of hay-fever, but may have any of the other allergic manifestations as asthma, urticaria, eczema, migraine, etc. The more positive the family history, the earlier in life do symptoms appear. Cooke and Vanderveer, in studying patients with hay-fever, found that when both parents were allergic, their children developed symptoms before five years of age in 36.3 per cent of cases, when only one parent was allergic the children developed symptoms before five years of age in 14.3 per cent of cases, and that where both parents were healthy symptoms developed before five years of age in only 5 per cent of cases.

Recently I have observed five patients, varying in age between 20 and 30 years, suffering with hay-fever and in whom the family history was negative for allergic disease at the time when I first saw them four years ago. Since this time one of the parents of each one of these patients has developed some form of allergic disease. My conclusions from the foregoing observation is as follows: A parent or parents may

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have the tendency to become hypersusceptible but never have symptoms of the disease, and yet they are capable of transmitting this tendency to their offspring who in turn develop symptoms of allergic disease.

There is no specific age at which allergic symptoms might develop. Children are born specifically sensitive and develop symptoms on contact with such proteins as foods, while others go on to old age and then develop symptoms of allergic disease. Therefore, I say a negative family history means nothing for the "tendency to become hypersensitive" may be in the family and yet none have developed symptoms except the patient from whom you are eliciting the history.

Diseases caused by hypersensitiveness to foreign proteins may be classified as follows:

1. Hay-Fever.
 - (a) Winter Type.
 - (b) Early Spring Type.
 - (c) Late Spring and Summer Type.
 - (d) Fall Type.
 - (e) Perennial Type.
2. Eczema.
3. Urticaria.
4. Angio Neurotic Edema.
5. Pruritis Ani and Vulva.
6. Epilepsy.
7. Asthma.
8. Migraine.
9. Mucous Colitis.
10. Abdominal disease referable to any viscus.

The etiology of the disease is as follows: Pollens of trees, grasses and weeds are major factors as causative agents in the majority of patients suffering with the disease.

In July, 1928, Mr. O. C. Durham and myself made a botanical survey of Memphis and vicinity in search of all flora which might produce hay-fever and asthma. All flora capable of producing allergic disease were tabulated as to name, date of pollination and location.

Trees may cause symptoms from February to the latter part of May. Those of most importance and responsible for symptoms in most of the cases of so-called tree hay-fever and asthma are:

- (1) Elm
- (2) Oak
- (3) Hickory
- (4) Cottonwood

Other trees whose pollen may produce symptoms are:

- (1) Maple
- (2) Black Walnut
- (3) Sycamore
- (4) Tree of Heaven
- (5) Hackberry
- (6) Mulberry
- (7) Willow

Grass pollen may cause symptoms from May through December, depending on climatic conditions. Bermuda grass is a most potent offender in this section, as it pollinates from May through December.

Other grasses of importance are:

- (1) Timothy
- (2) Blue Grass
- (3) Redtop
- (4) Johnson Grass
- (5) Orchard Grass

Pollen from weeds are major factors in the causation of the fall type.

Starting in June the Amaranths pollinate and continue to do so until frost. They are known as careless weeds and are responsible for an occasional case. In most cases, however, they are of minor importance. The weeds of most importance are:

- (1) Short Ragweed
- (2) Giant Ragweed
- (3) Southern Ragweed
- (4) Cocklebur
- (5) Marsh Elder
- (6) Annual Sage
- (7) Redroot Pigweed
- (8) Lambs Quarters

The ragweed pollen is the most toxic of all the pollen with possible exception of the cocklebur. It is paramount to use ragweed pollen in the treatment of fall type hay-fever and asthma.

Pollen not only produces symptoms of hay-fever but asthma as well in a good many cases. In an analysis of cases at the termination of this paper I will show you the frequent occurrence of asthma with hay-fever and asthma alone, due to hypersensitiveness to pollen. The asthma due to pol-

len may be seasonal or occur at any time during the year. The pollen which is blown about by the wind during the hay-fever seasons collects in dusts, draperies, rugs, furniture, etc., in homes. It is present in street dust and in the dust from the fields. It is blown about in dry weather regardless of season and serves as an irritant to an already muchly irritated mucous membrane. This pollen is toxic to susceptible individuals, as freezing does not destroy its potency.

Feathers are a frequent cause of hay-fever and asthma and are next in importance to pollen in many cases. Those most commonly responsible for symptoms were:

- (1) Chicken
- (2) Duck
- (3) Goose

Very often, however, patients were found sensitive to turkey and pigeon feathers and occasionally to canary and parrot feathers.

Animal hair and dander are major factors in a great many cases. Those most commonly found are:

Dog, cat, sheep, horse, rabbit, cattle, hog;

less commonly, guinea pig and furs of wild animals.

House dust is a factor in a good many cases.

Orris root, a constituent of face powder, is a major cause in some cases and when found positive it should be used in treatment.

Foods are responsible for symptoms of one type or another more often than is suspected. Wheat, milk, and eggs are the most important offenders in the food group.

Other causes which may be mentioned and are responsible for occasional cases are:

Pyrethrum, a constituent of insecticides.

Boxwood, used in the manufacture of jewelry boxes.

Tobacco, henna, red cedar, silk.

In studying any disease we must consider the normal physiology of the human body as well as the morbid physiology of the disease.

All allergic diseases with their symptoms and symptom complexes can be accounted for through the stimulation and inhibition

of the various ramifications of the autonomic nervous system.

This system, according to Langley, consists of two main divisions:

- (1) Parasympathetic.
- (2) Sympathetic.

Further subdivisions are made according to the part of the body supplied.

Nerve fibres of the parasympathetic system have their origin in the midbrain, bulb and sacral cord and pass to the periphery through the cranial nerves, namely, the third, seventh, ninth, tenth, eleventh and the nervous erigens formed by the sacral autonomies. The sympathetic system arises from that portion of the spinal cord which extends from the first thoracic segment to the fourth lumbar segment and consists of a series of ganglia known as lateral ganglia lying on each side of the vertebral column and is connected with the periphery through collateral ganglia, terminal ganglia, gray and white rami communicantes and plexuses of nerve fibres.

The foregoing is normal physiology.

In allergic disease the production of symptoms occurs through the parasympathetic division of the autonomic nervous system. By stimulation of the sympathetic system we overcome the action of the parasympathetic system with relief of symptoms. The parasympathetic nervous system in hypersensitive individuals reacts to an abnormal degree when irritated by absorption of or direct contact with a foreign protein. By this overaction various symptoms are produced in hypersensitive individuals. For example, in hay-fever the symptoms and physical signs are the direct result of irritation of the autonomic nerve ends by pollen granules. A persistent vasomotor and secretomotor stimulation occurs, causing dilatation of the blood vessels in the nose and throat with marked secretory activity of the glands.

In asthma there is a constriction of the bronchial musculature which is supplied with parasympathetic fibres running in the tenth cranial or vagus nerve.

Again let me remind you that heredity plays a most important role in the disease. I cannot help but believe from my studies

that the disease is hereditary and follows the Mendelian law. To me it seems that allergic autonomic nervous systems are handed down from one generation to another. By an allergic autonomic nervous system I mean one that reacts to an abnormal degree when stimulated by foreign proteins, which in no way affect a normal system in a non-allergic individual. The tolerance of the autonomic system for foreign protein varies in hypersensitive individuals and this could very well depend on the positiveness of the family history for allergy.

The older school of pathologists were of the opinion that edematous swellings of the nasal mucous membrane or polyps were due to a vasomotor disturbance plus infection. Later the opinion was expressed that the condition was due to infection alone.

Finck, of Boston, has made a careful study of allergic nasal pathology. From his studies he concludes that 20 per cent of polyp cases are due to vasomotor disturbance or have a vasomotor background and that the percentage may be greatly increased by further study and experience.

Polyps may be of two types, namely (1) acute, (2) chronic.

The acute polyp is transitory and occurs after a severe vasomotor attack or at the height of an attack. Microscopically these polyps show an edema of the mucous membrane with an eosinophilic infiltration.

The chronic type of polyp is more permanent and occurs after a prolonged vasomotor disturbance. The edema is persistent, connective tissue is laid down, forming a firm framework. Eosinophilic and plasma cells then appear in the stroma. Pyogenic infection can and does occur, though not always. True, pus may be formed in the sinuses, due to blockings of the natural openings by the swollen mucous membrane in the nasal passages.

Eyerman has studied the nasal secretions of allergic and non-allergic individuals. He examined secretions of 91 patients. Of this number 59 were allergic, 43 of these allergic cases, or 72 per cent, showed eosinophiles. Thirty-two patients were not allergic and in these only 3, or 9 per cent,

showed eosinophiles in their nasal secretions.

Death from asthma is rare and, therefore, autopsy material is scarce. About 25 cases have been reported. Koessler and Huber have studied the pathology of bronchial asthma and added six cases to the literature. According to them, there is hypertrophy of the bronchial musculature and glands with thickening of the bronchial wall. Emphysema is always present. It varies in degree in different portions of the lung. Eosinophilic infiltration occurs in the bronchial wall in allergic asthma. If the asthma is not allergic no eosinophiles are present in the bronchial wall. Eosinophiles in the blood and sputum are characteristic. In the blood they may range from 2 per cent to 50 per cent. Charcot-Leyden crystals usually are present.

The symptoms and physical signs of allergic disease may occur periodically as in seasonal hay-fever or continuously throughout the year as in perennial hay-fever or urticaria which comes out daily.

In seasonal hay-fever the dominant symptoms are itching, burning and watering of the eyes, itching of the nose with edema of the mucous membrane, causing obstruction to nasal breathing and marked mucous secretion. At times the pharynx, soft palate and eustachian tubes are involved and symptoms referable to these structures, such as itching, difficulty in swallowing, lump in the throat, deafness, tinnitus, etc., are most annoying to the patient.

The eyes appear red and swollen, secretion is abundant, nasal obstruction is ever-present, a hacking cough occurs in a good many cases. Asthma supervenes in about 65 per cent of seasonal hay-fever cases. This seems to vary, however, with the type from which the patient suffers. Severe headaches occur at times and almost drive patients to distraction. They are usually not relieved by coal-tar products or even morphine, for they seem to run their course and stop of their own free will and accord.

Secondary infection in the sinuses may or may not occur. If it is present let me state emphatically that it is not the primary cause of the disease but is secondary

and due to blocking of the natural openings of the sinuses by the edematous mucous membrane lining the turbinates.

The fall type of hay-fever is the most severe of the different types as ragweed pollen is much more toxic to hypersensitive individuals than other pollens.

In perennial hay-fever the symptoms are milder but are continuous and are a great source of worry to the patient. Eye symptoms are usually absent, the main trouble being confined to the nose. They complain of daily obstruction to nasal breathing with considerable watery secretion. It is a wet nose in the true sense of the word.

Frequent acute colds followed by bronchitis are common, especially in children. When such a condition is encountered allergy should be suspected and the cause or causes sought after.

When a mother tells you her child has had broncho-pneumonia three or four times and is still living, be on your guard, for quite frequently allergic disease exists and remains undiagnosed.

Itching is a diagnostic symptom, according to Balyeat and he finds this symptom present in a majority of his cases and makes the statement that, "When a history of itching, either in the eyes, nose or throat, is obtained, the case is almost sure to be found hypersensitive."

Asthma, in the true sense of the word, is more of a symptom than a disease. It simply means wheezy respiration. The disease causing the symptom is most frequently allergic, though there are other causes, as cardiac failure, mediastinal tumor, etc.

Migraine may occur as a result of hypersensitiveness on the part of the patient and I believe that testing every case is good practice.

Abdominal symptoms, such as pain, nausea, vomiting, diarrhoea, etc., in which physical findings and clinical pathological findings do not fit in with some definite pathological process, or if operation has been performed, findings are negative and relief not obtained, allergy should be suspected.

This is also true of the genito-urinary system, especially with reference to bladder

pain. Skin manifestations are common, the most frequent being urticaria, angio-neurotic edema, eczema and nettle rash. Foods are usually found to be the offending substances in these cases.

It is a known fact that in infants with eczema the disease usually subsides at the age of two or two and one-half years. The story is not complete at this point, however, for in a great many cases asthma or other forms of allergy develop a few months or years after the subsidence of the eczema.

After the asthma has developed it is usually persistent or recurs at varying intervals of time. I do not believe that very many children outgrow their asthma. It may subside for years, only to return and incapacitate the patient in adult life. This is not a theory, but a fact, that I have observed from the study of several hundred cases. If a child with asthma develops an acute infectious disease as scarlet fever, the asthma usually subsides and remains dormant for months. It is not cured, but inhibited, probably by the toxin of the disease inhibiting the parasympathetic nervous system.

If asthma is allowed to persist undiagnosed as to cause and untreated it will recur at intervals throughout life and is often accompanied by allergy in other forms.

The diagnosis of allergic disease is made on the history, physical findings, and the results of skin testing. Blood examinations to my mind are unnecessary in most instances. If a case is doubtful blood examination may be of value.

On the interpretation of skin reaction rests the diagnosis. It is a study in itself and expertness in interpretation comes only with experience. Slipshod skin testing is to be condemned, for it is the cause of a great deal of skepticism in regard to allergic diagnosis. In my work I use Balyeat's method which is, first apply the proteins by the dermal method and then follow this with intradermal injections of all proteins except foods and miscellaneous substances which give negative or doubtful reactions. It is not within the realm of this paper to discuss the technique of applying the proteins

and for it I refer you to textbooks on the subject.

Skin reactions vary from a very faint, irregular erythema to textbook hives with pseudopods and surrounded by a large erythematous area. Pseudo reactions occur and have to be differentiated from positive reactions.

Allergic cases have to be studied carefully and unless they are, failure to diagnose the case properly is frequent. It takes time and patience with a certain amount of skill in interpretation of the reaction obtained. Remember that the percentage of relief obtained by the patient from treatment depends absolutely on the accuracy of the diagnosis which should include testing for and finding out, if possible, all offending proteins.

In so far as treatment of these diseases is concerned, I believe that 90 per cent can be given some measure of relief, ranging from 25 to 100 per cent, depending on the age of the patient, the type of the affection and the length of time the disease has existed. For instance, in an elderly asthmatic with marked emphysema and bronchitis and possibly bronchiectasis you would not expect to get the therapeutic result that could be obtained in a child whose symptoms had only existed for a short time. I will say, however, that in a few seemingly hopeless cases they are made to feel most comfortable, even though their chest deformity and some bronchitis persists. Freedom from asthma is a great relief to any sufferer.

The time allotted me will not permit me to discuss in detail the treatment of each allergic affection, so I will have to be brief.

The results of treatment in seasonal hay-fever have been most gratifying to me. Practical relief was obtained by 95 per cent of my patients. In those in whom asthma had occurred in previous seasons, freedom from this distressing symptom was obtained in every case.

In perennial hay-fever the results are not so striking as in the seasonal cases. Only 55 per cent of these cases have obtained relief. This percentage will be higher, how-

ever, by the end of the year if treatment is continued.

My plan of treatment in seasonal hay-fever is as follows:

Patients are treated according to their specific sensitivity. Extracts of known potency are used.

Only those pollens are used in treatment which are known to be of major importance.

Pre-seasonal treatment is preferred.

Injections of extract are given every day or every two or three days according to the reaction produced by the previous injection.

This is according to the intensive treatment plan recommended by Duke.

When the patient has reached a maximum dose we drop back 5/100 cc., and continue this dose at five-day intervals throughout the season. We try to reach a maximum dose for each patient before the weeds or grasses or trees as the case may be, begin to pollenate.

When patients come for relief during the season I use a co-seasonal plan recommended by Phillips.

The patients are given intradermal injections of extract in increasing amount or strength of dilution daily if possible. I use the intradermal method during the season because I believe it obviates general reactions.

Bronchial asthma presents many problems in treatment and often taxes us to the utmost to obtain some measure of relief for the patient. Most of my patients of this type have been over 40 years of age with fixed emphysematous chest, considerable bronchitis and some with bronchiectasis. In one series of 34 patients, 15 were between the ages of nine months and 35 years and every one of these were relieved of their asthma. Nineteen of the 34 in this group were over 40 years of age. Of these, 12 obtained from 25 per cent to 90 per cent relief and nine obtained no relief.

In treating these cases I eliminated all offending proteins when possible. Extracts of proteins considered of major importance were used in treatment and given in increasing dosage at weekly intervals.

For example, if a patient had asthma and was found sensitive to feathers, fall pollen, dog hair, cat hair, and foods, I would treat him as follows:

Dogs and cats would be eliminated as well as foods. All feathers would be removed from the home and Kapok or cotton substituted in the pillows, mattresses, etc. Pollen extract would be given just as outlined for hay-fever sufferers or it could be given at weekly intervals. If symptoms persisted after thorough desensitization with the pollen extract, other causes would be sought by retesting and if none were found I would add a feather extract to the treatment in addition to the pollen.

I use supportive treatment in all cases, such as instructing the patient in general hygienic measures conducive to alleviating symptoms, freeing the bronchi of tenacious mucous by appropriate expectorant mixtures whenever indicated and prevention of asthmatic attacks by the use of adrenalin.

Migraine, food allergy, mucous colitis, eczema, etc., are best treated by elimination of offending substances. Small doses of ephedrine are valuable adjuncts in treatment. Results from elimination of offending proteins may be expected in from two weeks to three months. Treatment of these patients in my hands has been successful in about 40 per cent of cases.

In closing I wish to give you a brief analysis of 200 cases in which nose and throat examinations were made in 100 cases.

ANALYSIS OF 200 CASES

Age—9 months to 76 years.
Sex—Male 98; Female 102.
Color—White 188; Negro 12.
Allergic History—Positive 109—54.5 per cent; Negative 91.
Seasonal Hay-Fever—Fall 83—Asthma 37, or 44.5 per cent; Spring 27—Asthma 10, or 37 per cent.
Perennial Hay Fever 47—Asthma 5, or 10.7 per cent.
Bronchial Asthma 34—1 Cardiac, 1 Mediastinal Tumor.
Urticaria 5.
Migraine 1.
Epilepsy 0.
Mucous Colitis 0.
Pruritus Ani and Vulvae 1.

PROTEIN SENSITIVITY

Pollen	126	Foods	42
Feathers	64	Orris Root	16
Animal Em.	57	Furs	3
Dust	16	Miscellaneous	4

NASAL, SINUS, THROAT PATH., 100 CASES			
Polyps.	5	Antra	12
Deviated Septa. .	42	Tonsils	49
Hyp. Turbinates .	38	Adenoids	1
Spurs	14	Ear	2
Ethmoids	9	Pharynx	2
Sphenoids	2	Neck Glands ...	1
Frontals	3	Carious Teeth . .	17

CONCLUSIONS FROM ANALYSIS OF 200 CASES

1. The disease may appear at any age; in the infant or elderly adult.
2. Males and females are about equally affected in this series.
3. The negro is rarely a subject of the disease as compared to the white race.
4. Allergic family history was positive in 54.5 per cent of cases showing the part played by heredity as a factor in the disease.
5. Every hay-fever is a potential asthma regardless of type. In this series the percentage of asthmatics is low. A great many more will develop asthma as the years pass on, if they do not continue treatment.
6. Bacterial asthma is not included in this series of cases, as all patients were found sensitive to some foreign protein. It may have been a secondary factor in some cases.
7. Nose and throat pathology runs concurrently with the disease.
8. In treatment of these patients all foci of infection should be removed, obstructions to respiration corrected but only after the causative factors of the disease have been determined.
9. From 25 per cent to 100 per cent relief can be given 85 per cent of these patients when treatment is properly carried out.

DR. LEVY (Memphis): The allergic manifestations in infants offer a very fertile field for investigation.

We find them frequently in breast-fed infants, every sensitization tests usually result with negligible findings. However, we have a promising future as most of these infants outlive this disease.

Another interesting thing is the question of asthma in infants and young children.

One of the essayists on the program this morning has a series, three asthmatic in his family, by his first wife, one boy has had asthma, since his

(Continued on page 216)

REPORT OF TENNESSEE'S DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION IN PORTLAND, OREGON

L. L. SHEDDAN, H. B. EVERETT, M. M. CULLUM

To the Members of the Tennessee State Medical Association:

Gentlemen:

Your delegates to the A.M.A. beg leave to submit the following report:

The Portland meeting was in every way a success. There were registered 3,061 members. Of the 175 total membership of the House of Delegates, there were 141 registered, Tennessee's three delegates being present at every meeting.

We feel that this is an excellent showing, both as to general registration as well as to the number of delegates present, when you consider the meeting was in the extreme Northwest, away from the more thickly populated section of the United States. There was a most excellent exposition of scientific exhibits. While not as extensive and comprehensive as they were at the meeting in Minneapolis, they were surprisingly good under the circumstances. This feature of the annual meetings is becoming one of the most interesting and educational of any of the Association activities. In fact, one could well spend the whole time of the meeting most profitably in a study of these exhibits. It has become so important that the Trustees of the Association have, and we think wisely, provided a place in the Association's building in Chicago to place some of these outstanding exhibits. These are to be added to from time to time so that it will soon be one of the outstanding departments of the central office. You would do well to visit these exhibits and spend some time in looking them over.

We only wish that every member of the Tennessee State Medical Association could come in sufficiently close contact with the officers and Councils of the Association to give them a just conception of what is being done by the parent Association to further the interests of the profession in the United States.

One cannot conceive of the amount of time and energies expended by the Trustees, the Judicial Council, Council on Education and Hospitals and especially the Council on Pharmacy and Chemistry.

It has reached the place where the better men of the profession are looking more and more to the reports from this body of scientists for guidance in their selection of medicinal remedies. The manufacturing chemists and pharmacists are becoming more and more anxious and striving harder to have the merits of their preparations checked up by this Council.

Of the scientific side of the meeting your delegates can have very little to say. The work of the House of Delegates has become so heavy and so many vital questions affecting the whole profession are being brought before it that the delegates who do their duty, have very little time to devote to the scientific side of the meeting. Hence this report will of necessity be confined to a report of the transactions of the House.

We will first take up the report of officers. Those of you who are subscribers can read these reports in full by referring to the Journal of the A.M.A. for June 1st. If you have not read them, we would suggest that you do so, as they will give you some idea of their activities.

The Secretary reported the list of members as of May 1, 1929, 98,307, an increase, of something over 2,000 for the year.

Fellowships enrolled May 1, 1919, 64,915, being an increase of over 10,000 in five years, or an average of something over 2,000 per year. Tennessee had reported 1,755 members, but only 798 fellows. We feel that more members should apply for fellowship and would suggest that the Editor of the TENNESSEE STATE JOURNAL take notice of this and stress it editorially in the JOURNAL. A great many members of our State Society do not understand the difference between members and fellows, and if the Editor would state the difference and

give instructions as to the process of becoming fellows, we feel confident the fellowship would be largely increased in this state.

One thousand one hundred ninety-one members of the profession in Tennessee receive the A.M.A. Journal, and it costs nothing extra to become a fellow.

Only 39 per cent of the profession in the state receive the Journal. This being the 4th lowest percentage of any of the states, Alabama, Arkansas and Mississippi being the only states with a lower percentage. Even such small and isolated states as Arizona, Nevada, and New Mexico receive 70 per cent. This certainly is not a creditable showing for Tennessee. The Journal of the A.M.A. is unquestionably the best one in the English language. It is not a special Journal but one which will interest and be a very valuable assistance to men in every branch of practice. Only costs \$5 per year, which pays full dues to the A.M.A. We sincerely hope that more doctors will become both subscribers and fellows.

The Secretary again stresses the need for a compact and efficient organization. We quote one or two paragraphs from his report. "In some ways physicians are being subjected to greater pressure and stress than any other group. The tendency of government toward paternalism, the restrictions imposed by legislative enactments and bureaucratic regulations, the establishment of great funds and foundations, ostensibly benevolent in character, interested primarily in medical care, the modern trend of business with its installment plans and high pressure salesmanship, the propaganda of half-baked theories, semi-truths and positive misinformation through the public press and even through periodicals designed for physicians, a flood of loose talk without regard to fact, and, it may be, the disposition on the part of a minor element of the profession to commercialize the practice of medicine and to depart from ideals and traditions established through the ages that have made possible the progress and achievements of scientific medicine, all these are factors in the situation that exists today in which the medical profession

finds itself the object of much criticism that is not deserved, and the recipient of many suggestions for its conduct. Much of this may be helpful, but a great mass represents considerations which physicians know are impractical or even dangerous.

The Secretary again stresses the needs for an organization to help to combat these evils and deplores the multiplicity of medical organizations and compulsory staff meetings. He further says, "There are problems arising out of these more or less revolutionary conditions of the times that cannot be effectively solved, except through the agencies of organized medicine." Further, "The urgent demand of the times is for unified action and for expression through a great voice that will speak authoritatively for the entire profession of medicine in the several states and in the United States."

We feel that the admonitions of Dr. West should be heeded. Especially should this be true here in Tennessee, where we all know him and know his intense interest in, and loyalty to, organized medicine. We do not feel it will be amiss to again emphasize the great love and esteem which the profession of this country has for Dr. West as is plainly evidenced by the enthusiasm manifested when his name is proposed for re-election, which is always spontaneous and unanimous.

The report of the Trustees was most exhaustive and it would be altogether impractical for your delegates to go fully into a discussion of this report. We would again direct your attention to these reports published in the Journal of June first. However, there were a few things we feel would be of especial interest, which we will note briefly.

One was the suggestion that the present housing facilities were becoming entirely inadequate to accommodate the several activities of the Association and suggested that the House take the matter under consideration. It is planning for the future and suggested that a building be erected that would be in keeping with the dignity and importance of the profession of this country.

This suggestion was referred to a special committee, of which Dr. W. A. Pusey was chairman. In this committee's rather exhaustive and lengthy report they, of course, took up the question of finances. Having full confidence in the ability and fidelity of the Board of Trustees, they recommended leaving the matter to their judgment, with due consideration of the financial side of the question. The recommendation of the committee was adopted.

This is a very important question, one which may affect every member of the Association. We feel that such a building should be erected. We feel that the importance and dignity of the medical profession should have a monumental building as complete and as handsome as any other profession or business. Of course, we recognize the importance of making such financial arrangements as will not be burdensome to the members. However, we feel that in leaving the matter to the wisdom and discretion of the Trustees is a wise procedure.

The Trustees reported the discontinuance of the Spanish edition, which the House of Delegates concurred in. This particular edition was never self-sustaining. The object of the institution of a Spanish edition was to get interested members of the profession in the Spanish-speaking countries south of us. This being accomplished, the publication of such Journal was discontinued, but there has been added to the subscription list of the Journal a great many men in these Spanish-speaking countries, they recognizing the great merits and value of the Journal of the A.M.A.

The report of the Treasurer was most gratifying, showing the business of the Association is well in hand. This report shows net income of the Association of \$226,461.79 for the year, with total property and equipment of \$956,996.58. This, we feel, speaks for the business acumen of the Trustees and others in authority.

For a complete report of the transactions of the House of Delegates, we will refer you to the issues of the Journal of July 20th and 27th, which contain a detailed report of such transactions.

You will note that the Speaker of the House, Dr. F. C. Warnshuis, made the ruling that only duly elected delegates or their duly elected alternates could be seated in the House.

You will remember that in the House of Delegates of the Tennessee State Medical Association the Speaker, Dr. C. N. Cowden, made the same ruling in regard to the delegates to the Tennessee State Medical Association. Speaker Warnshuis cited the by-laws governing this matter, which, of course, is very clear. However, he stated that in the past delegates had been seated who were not duly elected and that it had caused some confusion and dissatisfaction. Just as Speaker Cowden ruled, it was suggested that if the House was dissatisfied that a change in the by-laws be made. Such a change was proposed but was voted down, so that, now, delegates, to be seated in the House of Delegates of the A.M.A., must be duly elected delegates or alternates.

This brings us up to another question which was proposed, and that was that of the A.M.A. paying expenses of delegates to the Association. This was offered by Dr. Smithies, of Illinois. The Trustees rejected this proposition and suggested that it was the State Association's duty to settle this matter. This question having been settled by the Tennessee State Association, of course does not affect our delegates. However, we do believe that as our House of Delegates in Tennessee has made a similar ruling that no delegate can be seated except regularly elected delegates or alternates that it is very essential that some arrangements be made regarding delegates from County Societies to State Societies.

We all know how difficult it is to get our delegates to attend meetings of the House. The business of the Association must be transacted by the House of Delegates and it is very important that they be present. Delegates are supposed to be there representing their county societies, transacting their business and looking after their interests. We further know that the delegate who does his duty in the House has very little time to profit by the scientific side of

the meeting. Hence, we recommend that each county society in the state pay the railroad and Pullman fares of their delegates. By doing this the delegate would feel in honor bound to attend to the business he is elected to and would feel in honor bound to attend the meetings of our House of Delegates. Of course, this would only apply to regularly elected delegates and not to ex-Presidents, who are permanent delegates by virtue of their offices. This, we feel, would add very materially to the efficiency of the House of Delegates to our State Society.

The addresses of both Drs. Thayer, the President, and Dr. Harris, President-elect, were well received by the House.

We wish space and time would permit us to give these addresses in full, but, as they were published in the Journal of the A.M.A., of July 20th, we deem it unwise to extensively elaborate upon them.

Doctor Harris touched upon the question of the cost of medical care and urged the profession to organize county society clinics to meet this condition in order to forestall such organizations by laymen who are organizing such clinics in some sections, much to the detriment of the regular profession. This question is a very vital one and one that is causing much unrest and dissatisfaction in certain localities. As this plan of Dr. Harris was given in full in a recent issue of the Journal, it would be unwise for us to try to explain it in this report.

Dr. Thayer's address was a splendid communication and contained much food for thought. The next morning's issue of the *Portland News* carried an interview by one Dr. Clarence True Wilson, a Methodist minister of Washington, D. C., in which Dr. Thayer was bitterly criticized for certain utterances. This attack on Dr. Thayer was bitterly resented by the House of Delegates, and caused some very caustic remarks by various members. Dr. Thayer asked that the House take no action, suggesting that he be permitted to make a short, concise answer to same. This was agreed to by the House. Dr. Thayer, in his modest, dignified manner, made his statement, which was in keeping with the facts in the case and just

such an answer as one would expect from a man of Dr. Thayer's standing.

Only two minor changes were made in the by-laws and one was making a two-thirds in place of three-fourths vote to change the Constitution and By-Laws. The other to change the name of the administration head of the Legal Bureau from "Executive Secretary" to "Director of Legal Medicine and Legislation."

While speaking of this department we wish we could give a complete report of the activities of this department. It is almost unbelievable the number of measures which are being proposed in Congress and the United States Senate and the Legislatures of the different states affecting in one way or another the medical profession. Dr. Woodward's report was very lengthy and only further emphasizes the great importance of a strong, compact national organization, one which will be willing to combat this flood of pernicious and meddlesome legislation.

There were many resolutions offered upon many and varied subjects, of which it is not feasible for us to undertake to discuss. However, there were a few such resolutions which we do feel should interest our members. One was a resolution offered at the meeting in Minneapolis by Dr. Charles J. Whalen, of Illinois, which was as follows:

"Whereas, it has come to our attention that students in universities and colleges are being given free medical care without regard to the ability of the individual to pay for the same. Therefore, be it resolved, That the Judicial Council be requested to investigate the matter as to the extent the practice prevails."

This resolution was referred to the Judicial Council last year. Such investigation was made by the Council and their report was made in full in Portland.

This report shows an immense amount of work on the part of the Judicial Council. Quite a lot of statistics were given, which we cannot copy. Will say again to those who are interested in this question, they can find it in full in the Journal of the A.M.A. of June 20th. We can only quote the closing paragraphs and conclusion of the Council, which says:

"One college president wrote: 'The majority of our students look upon this service as an economical form of health insurance.' In at least one instance the physical examination service is provided for the faculty also. In most cases in which the college does not maintain its own hospital, hospitals are available for the use of ill students, the service usually being given at a lowered cost. A number of colleges state that their student health service is operated on a deficit.

"Replies received to questions sent out indicate that the officers of colleges and universities throughout the United States feel that it is the duty of the college to look after the physical welfare of its students and one gets the impression from reading these replies that it is intended to extend the health and medical services already established to educational institutions throughout the country, and that in those universities and colleges which have not established such services the tendency is to make such provision as soon as possible."

Your delegates get the impression from this report that in most of the colleges free choice of physicians is left to the students, still the Council says: "Only 51 of 111 colleges from which answers were received state that free choice of physicians was permitted without restrictions, and that seven of these keep lists of physicians for the students' assistance and one of the seven tries to control the choice."

You can draw your own conclusions as to just where this matter is tending and where it will finally stop. To your delegates, it seems only another step in the direction of medical socialization.

Another resolution was offered along this same line by Dr. W. A. Pusey, of Chicago, and was as follows:

"Whereas, The House of Delegates at the last meeting, without dissent, voted that the practice of medicine was not the proper function of corporations and that the American Medical Association should use its utmost endeavors to stop this growing abuse; and

"Whereas, there is a rapidly growing tendency of organizations controlled by lay-

men to enter the practice of medicine; and

"Whereas, there are numerous new problems arising from this movement having to do with the relationship of physicians with each other, with the public, with industry and with the government;

"Therefore, be it resolved, that the Judicial Council of the American Medical Association be asked to present to the session of the House of Delegates at the meeting in 1930 a comprehensive statement for the guidance of the American Medical Association concerning the practice of medicine by corporations, by clinics, by philanthropic organizations, by industrial organizations, by demonstrations and by similar organizations and concerning the relationship of physicians thereto and that this present House of Delegates meet in special executive session to give preliminary consideration to this subject."

The House of Delegates did meet that afternoon in executive session and a lengthy discussion of this subject was held. However, no action was taken as the resolution provided that the Judicial Council bring its recommendation at the 1930 meeting.

This will probably be the outstanding subject that will be brought before the next House of Delegates and we feel that because of its far-reaching importance it will be well for the House of Delegates of the Tennessee State Association to give it careful consideration and have a free discussion of the same, that your delegates to the A.M.A. in 1930 may represent the sentiments of the profession in Tennessee.

Another resolution offered by Dr. Pusey was to the effect that the Trustees of the A.M.A. appoint a committee to direct the preparation of a comprehensive history of the Association, to be compiled and issued at the time of the dedication of the proposed new building, and to provide such funds as were necessary to meet the expenses of the work. This was referred to the Trustees, who reported that such steps would be taken. This was concurred in by the House. There were many other resolutions offered and much other business transacted which would consume entirely too much time and space for us to discuss.

We will say that, according to the instructions of the House of Delegates of the Tennessee State Medical Society, we did endeavor with all of our might and main to have the next meeting brought to Memphis. We feel rather gratified at the showing we made when we consider the competition we had. Philadelphia, Atlantic City and Detroit were our competitors. We succeeded in eliminating Philadelphia and Atlantic City, but were defeated by Detroit. We were also gratified to know that the only objection offered to Memphis was that it would bring together the largest meeting ever held and that it would take a city like New York or Chicago to handle such an enormous crowd, and that Detroit would not have so many, so that maybe they could handle all who would attend there. We want to say that our opponents were good sports and fought fair, and we feel sure that the meeting in Detroit will be very

largely attended and that the members will be royally entertained, and would suggest that every doctor in Tennessee join their Medical Society, subscribe for the Journal of the A.M.A., apply for fellowship and attend the Detroit meeting.

L. L. SHEDDAN,
H. B. EVERETT,
M. M. CULLOM,
Delegates.

STUDIES IN ALLERGY—Goltman

(Continued from page 210)

first year, now six years ago, and suffered four very severe attacks of asthma. By the second wife, who has a severe chronic case of asthma herself, there is a new infant and this baby has suffered a severe attack of asthma. This brings us back to the theory that asthma is possibly inherited. Certainly in this family, where we have three individuals, it offers a possible source as the cause of asthma.

DR. GOLTMAN: I want to thank Dr. Levy for the kind discussion of the paper.

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

H. H. SHOULDERS, M.D., Editor and Secretary

EDITORIAL

ORGANIZATION

Officers of local societies are requested to put forth an extra effort at this time to build their organizations up to the limit of possible membership.

There is a very definite limit to the work the central office can do along this line because membership in the state association is based entirely upon membership in a local society.

A doctor who is not a member of his local society cannot be a member of the state society. This office, therefore, cannot invite a doctor to join the state society. It can ask him to petition his local society for membership.

At various times this office has prepared lists of non-members and asked local socie-

ties to consider them and invite into membership those who are fit to be members. This office has not assumed, and cannot assume, to determine the question of eligibility. The matter of membership rests entirely with the local component societies and we do earnestly petition the officers of local societies to bring into contact with organized medicine all doctors who are qualified on ethical and scientific grounds for such affiliation.

THE DIRECTORY DEPARTMENT

In this issue there appears a new department of the JOURNAL, namely, the Directory Department.

In the August issue this matter was discussed editorially. For complete information on the subject we would refer readers to that editorial. It suffices to say at this time that this matter was submitted to the Board of Trustees and approved. It was submitted to the House of Delegates of the State Association and approved. The individual cards will be approved by the advertising committee. No boastful claims of superiority on the part of any person will be published, of course.

A number of our best state journals run a directory such as this department of the JOURNAL will be.

As before stated, this office has no intention of putting on a high pressure sales campaign. The department is open and is available to all members. We would be glad to run the directory department in such a way that no member can take offense. The rates for each card is on the basis of one-tenth of one page for twelve months, which is \$4.50 per quarter.

HISTORIC COMMITTEE

This committee of the State Association has about the hardest task that any committee has had in some years.

The death recently of Honorable DeLong Rice was a tragic blow to its activities.

A large amount of data had been collected and submitted to Mr. Rice and he had been sifting these data for many weeks and was ready to begin the actual writing of the history when death ended his activities.

It is now devolved upon the committee to find another historian capable of writing a creditable volume. They have lost no time and we have no doubt but that a volume will be ready for the centennial celebration next April.

OPERATIVE TREATMENT OF CANCER OF THE BREAST

From time to time short articles that are especially good but which are not intended as complete articles are submitted to the editor of the JOURNAL for review and publication. The following one is by Dr. Joseph Bloodgood, Baltimore, and is in the nature of a reply to questions asked by two physicians, namely, Dr. W. L. Crosthwait, Waco, Texas, and Dr. Eben Alexander, Knoxville, Tennessee, concerning the "Operative Treatment of Cancer of the Breast." We take pleasure in reproducing that portion of his letter which relates to the scientific subject.

Dr. Alexander wants to know in regard to the difference of percentages in recurrences following operations for cancer of the breast when the pectoral muscles are removed and when they are left behind.

Dr. Alexander says that he removes the muscles. A colleague of his stripped off the fascia—the technique of a German surgeon, 1895. Dr. Alexander expresses the opinion that it is impossible to make a thorough dissection of the axilla without removal of the muscles.

The majority of authorities today give credit to William H. Halsted, of Johns Hopkins, for his conception of the complete operation for cancer of the breast, which included the removal of all the major pectoral, except the clavicular bundle and the division of that bundle up to the clavicle at about the position of the attachment of the minor. The minor was severed at its two attached ends, after ligating all the acromio-thoracic muscles, and allowed to drop back with the axillary tissue. There were other points in Halsted's technique besides the removal of the muscle as indicated here. He states in his earliest communication in the Johns Hopkins Hospital Bulletin, before his publication in 1895 in the Annals of Surgery, that the palpable tumor should be the center of a large circle of skin which is removed with the tumor. If this circle did not include the nipple and areola, more skin should be removed. That is, sufficient skin to give the tumor a wide margin, to include the nipple and the areola, and then so much more that might be indicated to prevent sloughing of the flap. These skin flaps were dissected back, exposing a very large area of subcutaneous fat. Then there was a division of the fat down to the chest wall. All the major pectoral muscle was removed except the clavicular bundle. Then the clavicular bundle was divided to the clavicle. Now the acromio-thoracic vessels were ligated. After dividing the two ends of the minor pectoral muscle, a clean, painstaking dissection of the axillary contents was made from the apex down. The vessels were ligated close to the main branches of vein and artery. As a rule a large area had to be grafted.

You must remember, up to 1900 and even up to 1915, the majority of women with cancer of the breast came under observation in the late stage, with large local tumors and involved glands. The effort of Halsted and

his associates was not to curtail the operation in any way. Later, in the early cases, with very small tumors, it was often possible to close the wound without skin-grafting. But these tumors were given the same margin as the larger tumors, and the wound was closed without grafting not because the operator gave the cancer area less margin, but because the cancer area was smaller and needed less margin. In my clinic in the past fifteen years, the per cent of very early cases has been so large that we have discontinued dividing the clavicular bundle of the major pectoral or removing the minor. The moment the axilla is exposed after the removal of a portion of the major pectoral muscle, a skilled operator can tell at once if the high glands are involved. If they are not, the clavicular bundle is not divided, the minor is divided from the chest wall, and lifted up as a retractor.

I have no evidence that it is dangerous to leave the minor in these early cases, but if the glands are extensively involved, we follow Halsted's rule and, in addition, I excise a V-shaped piece of the clavicular bundle of the major instead of dividing it. This piece includes the acromio-thoracic vessels and lymphatics. I have no evidence that this is an improvement over Halsted's simple division, but it saves about thirty minutes in time.

In the records of the Surgical Pathological Laboratory the ultimate results in cancer of the breast cases have been computed since 1895. The per cent of five-year cures has practically remained unchanged. If the axillary glands show no microscopic involvement, 70 per cent of this group are living at the end of five years, with very few recurrences after this date. Thirty per cent die within five years of internal metastasis, or involvement of the other breast. Local recurrence is rarely observed in this group.

When only the base glands show metastasis, the five-year cures drop to 25 per cent. If the mid glands are involved, the per cent of those well at the end of five years is twenty. If the apex glands are involved, the five-year cures fall to 10 per cent.

When the glands are involved, the per

cent of recurrences after five years increases, and very few patients with involvement of the apex glands live ten years.

There was a time when we removed the supraclavicular glands as a routine measure, and in those years four per cent lived five years without signs of recurrence, but all ultimately died of cancer. We have practically given up the routine removal of the supraclavicular glands at the primary operation, and seldom subject the patient to it as a secondary operation, as radium or X-rays will make them just as comfortable for the time they have to live.

Our studies, therefore, demonstrate no reason to curtail the execution of Halsted's original technique. Today the vast majority of women are coming earlier for operation, and it seems perfectly safe to divide instead of removing the minor. But I have no evidence that it is safe to curtail the operation in any other way. We are curing more patients today than in the Halsted period, because there is a larger per cent operated upon before the glands are involved at all, or before the high glands contain cancer cells.

If there is to be any operative treatment of cancer of the breast today, it should be executed as taught us by Halsted. Do not depend on pre- or post-operative radiation to allow you to curtail your dissection in any way. Do not for a moment feel that the diathermy with and without coagulation, or the electric cautery will allow you to restrict the extent of the dissection. It has no advantage whatever over an expert dissection with the knife in cancer of the breast. It has its place in the palliative removal of late and ulcerating cancer of the breast.

In 1890, at the University of Pennsylvania, D. Hayes Agnew, then professor of surgery, removed the breast only in a few minutes, and he made the statement that he has never permanently cured a cancer of the breast. John Ashhurst, Barton professor of surgery of the same school, discussed the value of also removing the glands, but on a few occasions on which he removed the glands, he simply put his hand in the axilla and cut out what tissue he could grasp with

his fingers. I witnessed Nichols Senn, of Milwaukee, operate in 1890 for cancer of the breast. He performed a slow, painstaking dissection, removing the breast and the fascia and as much of the axillary glands as he could without dividing or removing muscle. An operation of this type was being done in England in 1890. You find it in English literature, and Sir Harold Stiles, retired professor of surgery of the University of Edinboro, remembers this very extensive operation, as performed by some of his teachers. Halsted in his paper in the *Annals of Surgery*, in 1895, gives the German literature.

The best study of the ultimate results after operations for cancer of the breast has been made by Janet E. Lane-Claypon for the British Ministry of Health. She gathered the statistics from the clinics of the world, with the conclusion that five-year and permanent cures depended upon two factors—the extent of the operation and the earliest intervention. I take the liberty of adding two other factors—the care in the minutiae of the technique of the complete dissection, the pathology of the tumor, and the grading of the cancer cell; and I will venture another—the resistance of the individual.

In brief, to accomplish the best results, for the cure of cancer of the breast, there must be, first, a systematic and continuous educational campaign and, second, good surgery. I can not find the evidence that pre- and post-operative radiations increase the number of cures. My colleague, Robert Greenough, of Boston, chairman of the Committee of the American College of Surgeons, who has collected all the cases from a large number of clinics, is of the same opinion—early intervention, good surgery, and the pathology of the tumor. We have no control over the last factor.

There is a movement in Europe, especially in England, to substitute implantation of radium for surgery, but the time is too short to judge. Unfortunately, in England and throughout Europe, there has been such a short campaign of education, that the vast majority of cancers of the breast are either hopeless, or have but ten per

cent chances of a cure. So the difference between the results of treatment by radium and even the best surgery, is so slight that it will require years to estimate the difference. I am still of the opinion that good surgery and early intervention offer most.

Dr. Crosthwait has asked me to comment on his article—*The Surgical Aspects of Cancer of the Breast* which appeared in the *Texas State Journal of Medicine*, in January, 1926.

The author is impressed that in spite of the educational campaign, the death rate from cancer of the breast has increased, and surgery alone for cancer of the breast, unaided by other measures, is inadequate and disappointing.

Texas is a much larger state than Maryland, and the problem of educating the people there is a much more difficult one, but my observations are more encouraging, and figures for cancer of the breast in my clinic are complete up to date. In the clinic at Johns Hopkins up to 1900, 80 per cent of lesions of the breast were malignant, 20 per cent benign, and less than one per cent of the benign type operation was not indicated. In my clinic today, since 1925, the incidence of cancer is seventeen, of benign tumors excised eighteen, of lesions not subjected to operation but benign, sixty-five. The actual operative cures have increased from less than ten to more than sixty. Inoperability has increased from more than 50 to less than 5 per cent. We rarely see sarcoma of the breast, or malignant papilloma in cysts, because these tumors are removed before they become malignant. The majority of cancers of the breast operated upon have uninvolved glands and therefore have 70 per cent chances of a cure.

These figures have not been influenced by pre-operative and post-operative radiation, or by the introduction of the diathermy needle or the electric cautery as a substitute for the knife, or by the use of alcohol sponges when dissecting the axilla or by the intravenous lead treatment in recurrent cases or in those with metastasis.

Dr. Crosthwait is right when he makes the statement that the only adequate treatment for cancer after metastasis is through

the blood stream, but up to the present time all intravenous measures have failed. We have no evidence that we can increase the patient's resistance by aiding metabolism or increasing phagocytosis. Apparently at the present time the only way to increase the number of cures is to educate women to report for an examination the moment they are warned and speeding up in every way research into the cause of cancer and the search for a more certain curative or preventive agent.

I can readily understand why Dr. Crosthwait is discouraged when he writes: "Noting that patients with malignant tumors of the breast applying for surgical treatment are generally bad surgical risks with marked evidence of chronic poisoning." There is only one way to interpret this message—all of these patients have metastasis and probably hopeless metastasis. Women in the early and curable stage of cancer of the breast are just as good risks as any other group of women at the same age. We do not expect any post-operative mortality or complications, except infection of the wound in this group of women. The infection of the wound is not due to their general condition, but to the dissemination of the hemolytic streptococcus by the pandemic of the flu of 1918, and the lesser epidemics since.

Pre-operative and Post-operative Radiation. I have studied my own cases for a period of ten years during which I employed radiation almost as a routine after operation, and as a pre-operative treatment when malignancy was advanced; as a palliative measure for pain it is unequalled by any other method, but it has not increased the five-year cures. Greenough, of Boston, from his studies, agrees with me. Dr. Max Kahn, my associate in charge of roentgen-

ology in my clinic, also agrees with me. The majority of others in the medical profession do not.

It is important to state that in England and in Europe many experienced surgeons have ceased to operate for cancer of the breast and are trying radiation as a substitute. They employ buried radium tubes.

Briefly, therefore, I must express my opinion: Today surgery offers more for the early stage of cancer of the breast, even with metastasis to the axilla, than any other treatment. There is no way of increasing the number of early cases, except by an organized, systematic, continuous educational program beginning in the primary schools and carried on through the press, radio, and other publications, in order to reach the general public. This educational program should be in charge of the boards of health, the local medical and dental societies, the nursing profession, the social workers, and the educational group of every locality.

The next most important thing is for people to finance research, because at the present time we have no way of combating disseminated, malignant disease, except by radiation, which is inadequate and unsuccessful, except in a small per cent of the cases. But we must repeat that at the present time when cancer comes under observation of the medical profession throughout the world in the late stages, radiation is the greatest boon for mankind, and its greatest triumph is in cancer of the cervix.

Very sincerely yours,

JOSEPH C. BLOODGOOD.

CENSUS CORRECTION

KNOX COUNTY

Harrison, B. I.

S 514 W. Cumberland '91 '12

WILSON COUNTY

Witherington, R. L. OALR Jackson

'74 '09

DEATHS

Dr. David H. Williams, 66, died October first, at Riverside-Fort Sanders Hospital, Knoxville.

Dr. Williams graduated from Bellevue Hospital Medical College, New York, in 1888.

Dr. Robert W. Tate, 58, of Bolivar, died September 6th, at the Methodist Hospital, Memphis.

Dr. Tate graduated from Columbia University, College of Physicians and Surgeons, New York, in 1895.

CORRECTED ROLL OF COUNTY SOCIETIES

COUNTY	PRESIDENT	SECRETARY	MEETING DATE
Anderson	H. F. Stiltner, Windrock	J. S. Hall, Clinton	1st Mon., 2 P.M.
Bedford	John W. Sutton, Petersburg	W. H. Avery, Shelbyville	3rd Thurs., 2 P.M., Dr. Ray's office.
Benton	See Carroll County.		
Blount	K. A. Bryant, Maryville	J. A. McCulloch, Maryville	Every Thurs., 8 P.M., First Natl. Bank Bldg.
Bradley	W. H. Sullivan, Cleveland	E. R. Ferguson, Cleveland	1st and 3rd Thurs., 7 P.M., Court House.
Campbell	J. W. Presley, Pioneer	F. A. McClintock, Newcomb	
Carroll	H. T. Collier, McKenzie	A. C. Elinor, McKenzie	Carroll, Weakley, Benton, Henry, 2nd Tues., Hotel Lynn, McKenzie.
Carter	J. L. Cottrell, Elizabethton	E. T. Pearson, Elizabethton	1st Mon., 7 30 P.M., First Natl. Bank Bldg.
Cheatham	W. S. Lockert, Ashland City	P. L. Pitt, Ashland City	
Chester		J. D. Anderson, Henderson	
Claiborne	See Hancock County.		
Clay	See Macon County.		
Cocke	A. L. Proffitt, Newport	J. E. Hampton, Newport	1st Tues.
Coffee	R. L. Dossett, Tullahoma	E. P. Vaughan, Manchester	1st Thurs.
Crockett	See Dyer County.		
Cumberland	E. W. Mitchell, Crossville	V. L. Lewis, Crossville	Cumberland, Overton, White, 3rd Thurs.
Davidson	J. O. Manier, Doctors' Bldg.	Sam P. Bailey, Doctors' Bldg.	Every Tues., 8 P.M., Doctors' Bldg.
Decatur		J. L. McMillan, Decaturville	
Dickson		R. P. Beasley, Decatur	
Dyer, Lake and			
Crockett	C. A. Turner, Dyersburg	E. H. Baird, Dyersburg	1st Wed., monthly.
Fayette		J. W. Morris, Somerville	Fayette-Hardeman, 1st Thurs.
Franklin	L. A. Templeton, Winchester	John P. Grisard, Winchester	Last Fri., 7 P.M., Court House.
Gibson	W. C. McRee, Trenton	George E. Spangler, Humboldt	
Giles	A. M. Allen, Buford	G. D. Butler, Pulaski	
Greene	L. E. Coolidge, Greeneville	M. A. Blanton, Mosheim	2nd Tues., 7 P.M.
Hamilton	J. H. Revington, Volunteer Bldg.	S. F. McIntosh, Volunteer Bldg.	Each Thurs., 8 P.M., Manufacturers' Association Bldg.
Hamblen	William E. Howell, Morristown	C. T. Carroll, Morristown	
Hancock, Claiborne,			
Union		I. N. Ford, New Tazewell	2nd Mon.
Hardeman	See Fayette County	J. Y. Alexander, Middleton	1st Tues. in Jan., April, July and October, Bclivar.
Hardin, Lawrence,			
Lewis, Perry,			
Wayne	J. T. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tues.
Hawkins		J. S. Lyons, Rogersville	
Haywood	J. M. Chambers, Brownsville	J. L. Edwards, Brownsville	Last Tues., 7 P.M.
Henderson		J. F. Goff, Lexington	
Henry	R. G. Fish, Paris	A. A. Oliver, Paris	(See Carroll County).
Hickman	C. V. Stephenson, Centreville	L. F. Prichard, Only	
Humphreys		W. W. Slayden, Waverly	
Jackson	J. D. Quarles, Whitleyville	L. R. Anderson, Gainesboro	1st Fri., Court House. (See Macon County.)
Jefferson		B. M. Tittsworth, Jefferson City	
Johnson	See Sullivan County.		
Knox	Ray DePue, West Church St.	Jesse C. Hill, 4323 Lyons View Pk.	Every Tues., 8 P.M., Medical Bldg.
Lake	See Dyer County.		
Lauderdale		W. V. Sanford, Ripley	2nd Thurs.
Lawrence	See Hardin County.		
Lewis	See Hardin County.		
Lincoln	D. T. Hardin, Fayetteville	J. V. McRady, Fayetteville	
Loudon	W. H. Harrison, Loudon	J. G. Eblen, Lenoir City	1st Thurs., Loudon; 3rd Thurs., Lenoir City, 7 P.M.
Macon	M. H. Allen, Lafayette	P. East, Lafayette	1st Wed., each quarter.
Madison	J. R. Thompson, Jackson	B. C. Arnold, Jackson	1st and 3rd Tues., 7:30 P.M., Y. M. C. A.
Marshall		J. A. Hardison, Lewisburg	4th Thurs.
Maury	Watt Yeiser, Columbia	W. K. Shedd, Columbia	2nd Mon., 11 A.M., Elk Lodge Room.
Monroe	H. C. Shearer, Madisonville	H. M. Kelso, Madisonville	2nd Tues., Aug., Sweetwater.
Montgomery	C. N. Keatts, Clarksville	Bryce F. Runyon, Clarksville	3rd Thurs. night.
Morgan		J. F. Love, Lancing	
McMinn	J. R. Nankivell, Athens	C. O. Force, Athens	2nd Thurs., 2 P.M., Dr. Nankivell's office.
McNairy	R. M. Hendrick, Selmer	H. C. Sanders, Selmer	3rd Thurs.
Obion	C. B. A. Turner, Union City	F. B. Kimzey, Union City	
Overton	See Cumberland County	A. B. Qualls, Livingston	3rd Fri.
Perry	See Hardin County.		
Polk	C. W. Strauss, Copperhill	F. O. Geisler, Isabella	
Putnam	H. H. Taylor, Cookeville	C. P. Martin, Cookeville	1st Thurs., 1:30 P.M.
Roane	R. E. Regester, Rockwood	T. H. Phillips, Rockwood	1st and 3rd Tues., 1 P.M., Red Cross Rooms.
Robertson	J. S. Freeman, Springfield	W. F. Fyke, Springfield	3rd Tues.
Rutherford		J. A. Scott, Murfreesboro	
Sevier	Ashley W. Ogle, Sevierville	R. J. Ingle, Sevierville	1st Mon., 7 P.M., First Natl. Bk. Bldg.
Sullivan	T. B. Yancy, Kingsport	H. S. Smythe, Bristol	
Shelby	O. S. McCown, Bank of Com. Bldg.	A. F. Cooper, Bank of Com. Bldg.	1st and 3rd Tues., Medical Arts Bldg.
Smith	R. E. Key, Monroville	B. J. High, Elmwood	1st Fri.
Sumner	L. M. Woodson, Gallatin	John R. Parker, Gallatin	
Unicoi	R. E. Stack, Erwin	J. R. Moody, Erwin	Every other Thurs.
Union	See Hancock County.		
Warren		John S. Harris, McMinnville	1st Wed., 1:30 P.M.
Washington	C. W. Friberg, Johnson City	Edward T. Brading, Johnson City	2nd Thurs. at noon, Hotel John Sevier.
Wayne	See Hardin County.		
Weakley	T. B. Wingo, Martin	J. E. Taylor, Dresden	3rd Wed., May, Aug., and Nov., at Martin. Also see Carroll County.
White	J. E. Mathis, Bearden	S. E. Gaines, Sparta	2nd Thurs., Dr. Gaines' office. See Cumberland County.
Williamson		K. S. Howlett, Franklin	2nd Tues.
Wilson	L. D. Allen, Smithville	J. R. Bone, Lebanon	Thurs. after 1st Wed., 2:00 P.M.

MEDICAL SOCIETIES

Blount County—We have received the year's program of the Blount County Society. After the receipt of this issue and before the arrival of the next, the following programs will be given:

October 17—"Intestinal Obstruction," Dr. J. E. Carson. To open discussion—Dr. E. H. Lowe.

October 24—"Bronchiectasis"—Dr. G. F. Hannah. To open discussion—Dr. J. E. Hall.

October 31—"Jaundice and Its Significance"—Dr. S. S. Kitrell. To open discussion—Dr. J. E. Carson.

November 7—"Management of Malnutrition in Children"—Dr. B. E. DeLozier. To open discussion—Dr. G. D. Lequire.

November 14—"Treatment of High Blood Pressure"—Dr. J. E. Hall. To open discussion—Dr. J. W. Norton.

East Tennessee Medical Association—The East Tennessee Medical Association will meet, October 17-18, at Lenoir City. A good program is being prepared.

Drs. Sidney Miller, Baltimore, and Perry Bromberg, Nashville, will be guests of honor.

Henry-Benton-Carroll-Weakley. — Dr. Roy A. Douglass, of Huntingdon, was the principal speaker at the September meeting which was held as usual at Hotel Lynn, McKenzie. Dr. Douglass spoke on "Infections of the Hand."

Maury County—Drs. C. N. Cowden, O. N. Bryan and H. H. Shoulders, of Nashville, were speakers at the September meeting of the Maury County Medical Society.

The meeting was well attended and was presided over by Dr. Watt Yeiser. On the second Monday in October a tri-county meeting will be held at Lewisburg.

Henderson-Decatur and Chester.—Henderson County was host of the September meeting. A large attendance heard and joined in the discussions of the two papers

by Dr. J. E. Powers, of Lexington, on "Colitis" and by Dr. Howell, of Lexington, on "Malaria with Pregnancy."

Hancock-Claiborne-Union—The meeting was held on September 9th at Sneedville. Interesting papers were read and discussed. A large number of doctors were present.

Davidson County—The following papers have been read before the society:

"Care of the Breast in Nursing Mothers," by Dr. Milton Smith Lewis; discussion opened by Dr. W. B. Anderson and Dr. L. D. Caldwell.

"Bantis Disease with Report of a Case," Dr. Douglass Seward; discussion opened by Dr. Jack Witherspoon and Dr. Richard Barr.

"A Review of Two Hundred Thyroidectomies" by Dr. N. S. Shofner; discussion opened by Dr. W. D. Haggard and Dr. L. W. Edwards.

Dr. N. S. Shofner was elected Secretary to act during the absence of Dr. Sam Bailey.

Knox County—An all-day meeting was held at Whittle Springs Hotel on September 26th, with the following program:

"Chronic Suppurative Otitis Media"—Dr. R. G. Reaves.

"Treatment of Flexion Contractions of the Extremities, with Presentation of Case"—Dr. Robert Patterson.

"Neurological"—Dr. R. B. Wood.

"Radical Operation for Cancer of the Breast with especial reference to the Preservation of the Function of the Arm," Dr. L. L. Shedd; discussion led by Dr. W. S. Nash.

"Some Points in the Treatment of Lobar Pneumonia"—Dr. E. R. Zemp; discussion led by Dr. C. J. Carmichael.

"Certain Aspects in Post-Operative Care and Treatment"—By Dr. E. G. Wood; discussion led by Dr. H. Dewey Peters.

"The Throid Heart and Its Management"—Dr. J. J. Greer; discussion led by Dr. R. G. Waterhouse.

"Eye Diseases of Systemic Origin"—Dr.

R. H. Newman; discussion led by Dr. Robert S. Leach.

"The Treatment of Pernicious Vomiting"—Dr. G. A. Williamson; discussion led by Dr. A. L. Rule.

"Spinal Anesthesia"—Dr. E. S. Clayton; discussion led by Dr. Richard McIllwaine.

Address by Dr. W. A. Bryan, Nashville.

The following subjects were discussed at other weekly meetings:

"Diagnosis of Dermatological Conditions"—By Dr. A. H. Lancaster.

"Renal Tuberculosis"—By Dr. Tom R. Barry.

"Gall Bladder Disease"—By Dr. R. B. Wood.

"Chronic Suppurative Otitis Media"—By R. G. Reaves.

NEWS NOTES AND COMMENTS

Dr. R. E. L. Smith, Superintendent of the Eastern State Hospital, was in Nashville on business several days in September.

Dr. M. M. Huling, of Winchester, was a patient in Protestant Hospital at Nashville for several days in September.

Dr. Virgil H. Crowder, a 1929 graduate of the University of Tennessee Medical Department, has opened his office in Lawrenceburg.

Dr. Swan Burrus, of the Wiggins-Burrus Clinic, Paris, is in Philadelphia for a year's work at the University of Pennsylvania. He will specialize in surgery and gynecology.

Dr. Thomas N. Coppedge, of Memphis, was seriously injured in an auto accident recently. He was improving, according to the last reports received.

Dr. Roy W. Epperson, after completing an internship at Erlanger Hospital, Chattanooga, has located at Niota.

Dr. S. T. Wells, formerly of Duncan, Miss., has moved to Newbern and will practice medicine there.

Dr. R. L. Witherington has moved from Lebanon to Jackson, where he will continue to practice medicine.

Dr. J. B. McElroy has been named chief of staff and Dr. J. L. McGehee chief of surgical division of the Memphis General Hospital.

In East Tennessee the Health Department has made 1,706 examinations for and has found 326 cases of trachoma. Eighty of these patients have been treated medically and eight surgically.

Seventeen states and Porto Rico are represented in the fall registration at the medical, dental and pharmaceutical department of the University of Tennessee. This year's enrollment will be about 125 more than last year.

At the East Tennessee Division Fair a three-reel health film was shown by the Knox County Health Department.

Dr. Homer Reese, of Gallatin, recently spent a week in Enid, Oklahoma, visiting friends.

Dr. Ashley Ogle has returned to Sevierville after serving for some time as medical director of the Goetz Sanitarium, Knoxville.

Dr. Walter S. Nash was elected to the City Council of Knoxville, on September 28th.

Dr. Russell K. Hollingsworth, of Denver, Colo., is now associated with Dr. Jere L. Crook, Jackson, and will engage in general practice of medicine and surgery.

Dr. R. H. Perry, of Nashville, was seriously ill several days last month. However, our last reports are to the effect that Dr. Perry has greatly improved.

Dr. Hearn Bradley, Nashville, has been attending pediatric clinics in Boston for past three weeks.

Dr. W. T. Kennedy was elected by the City Commission of Johnson City to give physical examinations to the civil service employees of the city.

Dr. J. B. Cox, of Huntingdon, whose recent illness has rendered him unable to look after the duties of his office as a practicing physician for the present, has effected a partnership with Dr. Tyler Cox, of Westport.

Dr. and Mrs. G. W. Burchfield, of Maryville, are spending a month in Rochester, where the doctor is doing some special work.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons held its 42nd annual meeting in Memphis, September 16-18. Next year the meeting will be at Niagara Falls. Dr. Edgar A. Vanderveer, of Albany, New York, was elected President, Dr. Percy Tooms, of Memphis, First Vice-President, and Dr. J. E. Davis, Ann Arbor, Michigan, Secretary.

LADIES' AUXILIARY

The Memphis *Press-Scimitar* of September 21st carries the following interesting account of the activities of the Ladies' Auxiliary:

Struggling medical students in Memphis will have their way made smooth by action of Memphis doctors' wives, Dr. O. W. Hyman, College of Medicine, wrote President John Harcourt A. Morgan of the University of Tennessee, Saturday.

Dr. Hyman, acting dean of the college, was conveying to the president an offer of the Women's Auxiliary, Memphis and Shelby County Medical Association, to establish a loan fund for needy students. A check for \$350 accompanied the offer, and awaits only formal acceptance of Dr. Morgan for use.

Under active leadership of Mrs. W. H. Gragg, president of the auxiliary, wives of local physicians gathered the money last year from bridge parties and entertainments. It is but a small part of what they propose to raise.

Students applying must furnish two references, one of which is either a bank or public official.

The auxiliary expects in a few years to increase

the principal of its gift to several thousand dollars.

The program for the all-day meeting of the Knox County Medical Society bears the following strikingly true statement:

"The Knox County Medical Society is a post-graduate school of medicine which has the interest of the general public at least."

A CORRECTION

In our report of the August meeting of the Five County Society we relied on a newspaper clipping and reported Dr. J. P. Keller's subject as "Hypnotism." As a matter of fact, Dr. Keller spoke on the much more serious subject of "Hypotension."

COUNTY HISTORICAL COMMITTEES

Complying with an appeal made by the State Secretary, some counties have appointed historic committees. We have been notified of the following chairmanships and hope to report others in future issues.

Bedford County—Dr. G. W. Moody, Shelbyville.

Loudon County—Dr. W. H. Harrison, Loudon.

SOUTHERN MEDICAL ASSOCIATION

The Southern Medical Association holds its annual convention in Miami, Florida, November 20-22.

The Medical Association of Georgia will conduct a motocade to this convention. It will leave Savannah, Ga., on the early morning of the 18th of November and will arrive in Miami the evening of the 19th. The entire highway between Savannah and Miami is paved with cement or asphalt.

The Medical Association of Georgia wishes to extend to the Medical Association of Tennessee a most cordial invitation for its membership to come in their automobiles and join the president's tour to Miami.

Application slips will be printed and may be obtained from Dr. Allen H. Bunce, Secretary of the Medical Association of Georgia, 139 Forrest Avenue, Atlanta, Georgia.

BOOK REVIEWS

CLINICAL ELECTROCARDIOGRAMS, THEIR INTERPRETATION AND SIGNIFICANCE.

By Frederick A. Willius, B.S., M.D., M.S., in Medicine, Section on Cardiology, The Mayo Clinic, Rochester, Minnesota, and Associate Professor of Medicine, The Mayo Foundation, University of Minnesota. Cloth. Pp. 219. Price, \$8.00. Philadelphia, W. B. Saunders & Co.

This is an unusual work in that it is devoted entirely to graphic charts and illustrative examples from the large clinical experience of the author. The book is devoted entirely to the reading of the records themselves and their clinical significance. There has been no attempt to discuss the technic of electrocardiography, the preparation of records, theory, or the many controversial questions incident to the discussion of this subject. The published records from a large number of clinically normal individuals, particularly young infants and children, should prove a great help to the clinician in the interpretation of his records. This work will undoubtedly prove a great aid as a reference book in the interpretation of Clinical Electrocardiograms.—J. P. Keller, M.D.

MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. Gleason, M.D., LL.D., Professor of Otology, Graduate School of the University of Pennsylvania. Sixth Edition, thoroughly revised. 12 mo. of 617 pages with 262 illustrations. Philadelphia and London: W. B. Saunders Co., 1929. Cloth, \$4.50 net.

This little book well indexed and illustrated contains more condensed information than any book of its size which has come to my hands.

It has all the requirements needed in a text book for students and general practitioners. The specialist in this work can find many useful hints in the suggestions as to treatment, especially in the thirty-five pages of formulas.

It is surprising how well this small book covers the subjects upon which it treats.

The author's statement that it was written "to supply" students and general practitioners with the essential facts is amply borne out by the text.—W. G. Kennon, M.D.

"OSTEOMYELITIS AND COMPOUND FRACTURES." By H. Winnett Orr, M.D., F.A.C.S.

This excellent monograph gives in great detail the "Orr Treatment" of osteomyelitis already familiar to most orthopaedic surgeons.

Two introductory chapters dwell upon Sir

Joseph Lister and Antisepsis and "Lessons of the Great War" at somewhat unnecessary length and detail. However, they drive home the necessity of a change from accepted methods of treatment. In the chapter on osteomyelitis the pathology is outlined by quotations from Gallie. He also quotes this author in his criticisms of methods in general use in the world war. Then follows a thorough discussion of the subject of "Orr Treatment." He emphasizes: (a) drainage, (b) removal of dead tissue, (c) protection of infected area against re-infection or mixed infection, (d) enabling patient to make the most efficient natural resistance to his infection, and (e) proper splintage to prevent deformity and to secure perfect rest.

To accomplish the above purposes the treatment is outlined in detail. In the chapter on compound fracture precisely the same principles are used. The author insists upon re-position of fragments as soon as encountered, if practicable.

Reports of numerous cases treated by the "Orr Method" follows in chapter on "Clinical Results." Both the author's reports and those of other physicians using his method are very convincing.

Every surgeon handling these cases should read this book.—Robt. F. Patterson, M.D.

DISEASES AND DEFORMITIES OF THE SPINE AND THORAX. By Arthur Steindler, M.D., F. A. C. S., Professor and Head of the Department of Orthopedic Surgery of Iowa State University Medical School, Iowa City, Iowa. Pp. 573, with 76 plates. St. Louis, C. V. Mosby Co., 1929.

In this volume the author presents in a scholarly manner a comprehensive study of the diseases and deformities which may affect the axial portion of the human body. As stated in the preface, the purpose of the monograph is to develop each subject in coherent and logical sequence in order that the reader may formulate independently an opinion of the various forms of treatment which are described; the detail with which the etiology, pathology, classification and symptomatology are presented also eliminates any tendency toward dogmatism. The result is a book which will be extremely useful to the surgeon and clinician actively engaged in solving orthopedic problems, although such comprehensiveness lessens the value of the text to the undergraduate student and general practitioner. Dr. Steindler's familiarity with the orthopedic literature in many languages exceptionally qualifies him for the work he has undertaken and the book should undoubtedly rank high as a classical reference work on the subject of spinal affections.

The investigations concerning congenital malformations of the spine tend to prove that these anomalies of the skeleton are produced by power-

ful forces during the critical period of osseous transition and that probably all variety of developmental anomalies are dependent upon a common cause. The association of peripheral deformities with congenital malformations of the spine is emphasized and the latency in development of the peripheral symptoms in such conditions as spina bifida occulta, spondylolisthesis and cervical rib is explained by the greater rapidity of osseous growth at puberty. Normal posture and its evolutionary development as a result of the assumption of the erect attitude is discussed thoroughly and the common anteroposterior deviations from the normal posture are explained as being due to alteration in the relationship of the three mechanical units, the spine, the thoracic cage and the abdominal cavity. Vertebral osteochondritis and epiphysitis are differentiated and their role in the etiology of many of the spinal deformities discussed.

The chapter on scoliosis, as might be expected from the author's interest in and numerous personal contributions on the subject, is particularly complete. The historical review includes material from the very earliest period of medical endeavor up to the present time and reveals the everchanging trend of medical opinion, because like few other subjects the history of spinal curvature unfolds the "evolution of medical thought condensed into a single narrow field of surgery." Clinically, scoliosis is divided into three classes, (1) primary deviation, or the congenital form, (2) scoliosis from disease and acquired anomalies, including habitual and rachitic forms, (3) secondary deviation from pathological changes outside the spine, including paralytic, respiratory and circulatory disturbances. The three principles of treatment which are mobilization, correction, and maintenance, are exhaustively covered and clearly developed. The author's principle of compensation by establishing secondary curves and thus restoring the center of gravity to the midline of the body is described. A presentation of the Galeazzi method of correction is included and also a description of the operative methods of fixation by the technics of Albee, Hibbs, Forbes and Schede. The author states, however, that surgical fusion should not be accepted as a routine procedure in scoliosis as most authorities believe that the natural equilibrium of the body may be restored through active muscular control even in the absence of complete anatomic symmetry.

In fracture deformities of the spine conservative treatment consisting of hyperextension and external support may afford greater mobility and usefulness of the back. There is a growing tendency, however, toward primary fusion operations

as the operation seems to shorten the period of convalescence. When complicating injuries to the spinal cord are present, early decompression by laminectomy is advised in those cases in which the symptoms indicate an incomplete crushing of the spinal cord. The operation may be delayed in other cases, unless the symptoms are progressing. Explorations should be performed in all instances when the cauda equina is involved. The Quickenstadt test, which is generally accepted by neurological surgeons as a routine diagnostic procedure, is not mentioned. The differential diagnosis of the various conditions leading to the syndrome of low back pain is stressed. This complaint is a frequent symptom in pelvic or abdominal disorders, in regional disturbances of the skeleton, or in neurological, traumatic and infectious lesions. The anatomic susceptibility produced by variations in size and contour of the transverse processes of the fifth lumbar vertebra is admissible as a predisposing factor in traumatic affections. The discussion of the pathology, symptoms and diagnosis of tuberculosis of the spine is very complete and the indications for and the technic of the fusion operations upon the spine are given as well as the conflicting opinions of various observers as to the efficacy of fusion of the spine during childhood. A chapter is devoted to osteomyelitis of the spine and one to syphilis. Chronic arthritis is considered as a systemic disease and the spinal manifestations are classified into the two main groups; the atrophic and the hypertrophic. In the chapter on spinal tumors both primary and metastatic neoplasms are described. A synopsis of the anatomy of the spine is given in the appendix. The bibliography is comprehensive and is arranged in alphabetical order and with reference numbers at the end of each chapter. The numerous illustrations are well selected and the publisher has compiled the work attractively. Typographical errors are infrequent but unfortunately occur, notably page 132, line 17, and page 209, line 25. The author's index and the subject index are carefully prepared.—Drs. J. I. Mitchell and Willis C. Campbell.

THE NOSE, THROAT AND EAR AND THEIR DISEASES. Jackson and Coates.

This book includes some twelve hundred pages, in good print, on good paper, and well arranged.

It is written by some seventy-five different American and European authors, and naturally it presents the ideas of different men on almost any subject.

The book is essential in the library of any student of Oto-laryngology.—F. E. H.

ABSTRACTS OF CURRENT LITERATURE

ANESTHESIA

By Hugh Barr, M.D.

Medical Arts Bldg., Nashville

The Thymus Obsession. John Lovett Morse, A.M.M.D., Boston, Mass. *Current Researches in Anesthesia and Analgesia.* July-August, 1929.

Although it has been stated that any child who has an enlarged thymus should not be anesthetized until the thymus has been reduced to normal by X-ray treatments, the author states that it is impossible to determine the normal size of the thymus with the X-ray.

He denies that sudden deaths under anesthesia without apparent cause can be attributed to status lymphaticus. He admits that many children have died under anesthesia who showed changes due to status lymphaticus, but also many who did not have status lymphaticus. It is claimed that seven per cent of children under ten years of age have enlarged thymic shadows and seven per cent have not died under anesthesia in the past.

He believes some other cause must be found. That several surgeons and anesthetists interviewed did not regard pre-operative X-ray examination necessary and that shrinking the thymus has no effect on status lymphaticus.

DERMATOLOGY

By E. E. Brown, M.D.

Doctors Building, Nashville

X-Ray Treatment of Naevus Verrucosus (Ichthyosis Hystrix). By Chas. W. Perkins, M.D., Port Chester, N. Y. *September Urologic and Cutaneous Review.*

He reports and presents photographs of one case so treated with apparently good results. One skin unit of unfiltered X-ray was first given to the whole area and then two skin units to different areas at monthly intervals.

The Use of Gentian Violet in Erosio Interdigitalis Saccharomycetica. By Theodore Cornbleet, M.D., Chicago, Ill. *Archives of Dermatology and Syphilology,* August, 1927.

The following method was used with good results in twenty cases. The lesions were painted twice daily with two per cent solution of Aqueous Gentian Violet and allowed to dry. Gram's solution of iodine was then applied.

This treatment was kept up until clinically

cured and then apply only the Gentian Violet for several weeks. Wear rubber gloves when doing house work. Avoid contact of soap, water and other irritants.

INTERNAL MEDICINE

By R. B. Wood, M.D.

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Barbituric Acid Compounds.

There is being considerable interest shown in the intravenous injections of various drugs for the production of anaesthesia, and somewhat elaborate claims are made by the firms who place them on the market. Most of these drugs fall into the barbituric acid group, which were first used for the production of sleep in animal experimentation work. Iso-amylethyl-barbituric acid (Amytal) has been shown by workers (the effect of amytal anaesthesia upon the uterus and its use in obstetrics, by Dr. D. L. Drabbin, I. S. Randin, J. C. Hirst and M. E. Lapham in the A. M. J. Med. Sc., Sept., 1929) to have no deleterious effects on the uterine contractions of guinea pigs either with the uterus in situ or removed from the animals and studied in a constant temperature bath.

The response to the oxytocic principle of the pituitary was not disturbed. Albino rats of 200 gm. weight were anaesthetized with amytal given intraperitoneally and anaesthesia was obtained in three minutes when using 75 mgm. and incompletely anaesthetized on 25 mgm. per kilo of weight.

The authors have also used amytal for anaesthesia in 33 obstetrical cases. The dosage in the first 30 cases was 25 mgm. per kilo of "assayed" preparations and given per rectum. In the last three 30 mgm. per kilo were used. The advantages according to these men of rectal administration are threefold:

- (1) The patients think they are receiving an enema, thus getting perfect anoci technique.

- (2) They go to sleep slowly and complete relaxation occurs in 30-45 minutes.

- (3) No precautions need be taken in regard to collidol material in the solution as is necessary in intravenous work.

The results were excellent in 13 cases, meaning perfect anaesthesia throughout the period of delivery. In ten cases the patients moaned or moved during contractions, but were quiet and relaxed between pain. In seven cases the patients while quiet between contractions were noisy and unmanageable during them and needed restraint. In two patients contraction ceased and did not reappear until all effects of the amytal had disappeared.

In the majority of patients no change was noticed in the blood pressure throughout anaesthesia

and a drop of over 10 mm. Hg. was regarded as a change. This occurred in five patients and the maximum drop was 50 mms. Temperature showed little to no variation, the pulse was raised in one-half the cases the maximum being thirty per minute. The fetal heart was unaltered. The respirations were rarely affected.

Forceps were used or version done in 17 cases. and in 4 of these additional anaesthesia was used.

Two babies were slightly asphyxiated, both in difficult deliveries, but none of the others showed any signs of narcosis.

The period of sleep varied and in 18 carefully kept records one was awake in six hours, six in twelve hours, five in eighteen hours and six in twenty-four hours.

There was one baby born dead in the series, which was twenty-four hours after the administration of the drug at a time when the patient had fully recovered from the drug. The delivery was by high forceps after a prolonged labor.

The striking feature of amytal anaesthesia is the amnesia. Not one of the patients who slept remembered the delivery.

At the same time we note a sound of warning coming from an article (The Therapeutic Indications and the Dangers of Intravenous Administrations of Sodium-Phenyl-thyl Barbiturate (Sodium Luminal) and the Barbituric Derivations), by Dr. Soma Weiss in *Am. Jr. Med. Sc.*, Sept., 1929). The author states that all the different preparations of barbituric acid sold are closely related in their pharmacologic and therapeutic action and that the relative toxicity of veronal, amytal, allonal and luminal is essentially the same when administered intraperitoneally or intravenously slowly.

The earliest manifestation of the drug is slight confusion with a dull, heavy sensation in the head. Respiration is reduced with onset of sleep unless it be deep and ending fatally, when it becomes rapid and shallow. Marked cyanosis, moist skin, very low blood pressure and a rapid thread of pulse are noted.

The author notes that it is safe to assume that 4-6 gms. of luminal by mouth may be fatal frequently, while 10 to 16 gm. of veronal will act in a similar way, thus proving that man is more susceptible than animals.

The intensity of the effect of the drug varies in man with the state of the nervous system. Sensory and motor excitement act antagonistically while depression acts synergistically.

Sodium luminal given intravenously in doses of .4 to 1.2 gm, at a rate of 5-mg. per minute in 10 per cent solutions stops convulsions, produces sleep with considerable regularity. It is also of value in severe status epilepticus, eclampsia, convulsions from cerebral hemorrhage, local anaesthetics or in tetanus.

The routine use of intravenous hypnotics of barbituric acid derivatives for surgical anaesthesia

or to produce sleep in certain psychoses is dangerous, because of the marked inhibitory influence on certain medullary and midbrain centers. Any hypnotic dose entails potential danger for the patient.

PEDIATRICS

By John M. Lee, M.D.

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Chronic Adhesive Pericarditis. By Hugh McCulloch and William R. Wilson. *Amer. Jour. Dis. Children*, September, 1929.

Chronic adhesive pericarditis usually follows rheumatic fever and in children may be one of two different types. In one, the child has an acute attack of precordial pain with fever, prostration, friction rub, and usually with some amount of fluid in the pericardial sac and signs of myocardial and valvular injury. These attacks may or may not follow acute tonsillitis. They last from a few days to a few weeks and usually clear up, leaving the child in his previous state.

It has been noted that children with fair complexion and reddish blonde hair have rheumatic fever with pericarditis in this way. This form of fibrinous or serofibrinous pericarditis is essentially exudative in nature, and belongs in this group described by Swift. The second type of reaction results in adhesive pericarditis. A history of acute attacks of pericarditis in these is lacking. The diagnosis is made either when the child comes for first observation or when after being continuously under observation, there comes a time when a diagnosis can be made with no definite onset to be noted. This type of pericarditis is more frequently seen in the sallow, semi-blonde type of child who shows other signs of a proliferative lesion, notably rheumatic nodules about the joints. This reaction conforms to the proliferative type described by Swift as hyperergic, in the nature of the response to the infection.

The clinical diagnosis of chronic adhesive pericarditis is often difficult. The signs which suggest such a condition are: (a) A history of attacks of precordial pain; (b) deformity of the anterior chest wall over the heart; (c) congestive heart failure of severe degree; (d) signs of adhesions to neighboring structures; (e) fluoroscopic confirmation of these adhesions; (f) electrocardiograms with fixation of the cardiac axis when the patient is shifted from the left to the right lateral recumbent position, and signs of disturbance of mechanism.

The effect of adhesive pericarditis on the heart is to seriously impede its contraction and to throw additional strain on the heart muscle. In a heart muscle already injured by rheumatic fever, this embarrassment is sufficient to cause congestive heart failure. When the right ventricle becomes adherent to the pericardium and eventually to the

chest wall, there is the added strain of contraction against a fixed structure. It is probable that extreme degrees of cardiac failure which resist ordinary medical treatment are accounted for by this right-sided cardiac failure.

To relieve these patients cardiomyolysis has been proposed to set the heart free from this contraction against a fixed structure. The results of this operation have been sufficiently satisfactory to warrant its continued use. It has been employed successfully on two children in the St. Louis Children's Hospital. Under local anesthesia, the anterior chest wall lying directly over the heart has been resected and removed. The relief of congestive heart failure and disturbance in mechanism of the heart in a child, aged four years, was immediate and definite. She died about four months later with acute lobar pneumonia, without signs of congestive heart failure. The other child, aged 15, was greatly relieved. He showed fibrillation of the auricles before operation and this condition continued. He was able to be more active and showed no signs of congestive heart failure.

NEUROLOGY and PSYCHIATRY

By H. J. Hayes, M.D.

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Mental and Neurologic Changes in Pernicious Anemia. Report of a Case with Treatment by the Minot-Murphy Diet. By Lauren H. Smith, M.D., Philadelphia.

Lauren comments and concludes as follows:

Medical Aspect.—A special point of medical interest is the similarity of this case to Addison's disease. This was noted before the studies in the laboratory were complete. In favor of Addison's disease were the history of weakness, tired feeling, low blood pressure, low content of sugar in the blood and gastro-intestinal symptoms. The discoloration of the skin and the anemia were characteristic of both diseases. The symptoms proceeding from the spinal cord were in favor of pernicious anemia. However, Grinker had reported their occurrence in Addison's disease, carcinoma of the bowel, pellagra and arteriosclerosis. Hurst and Bell had mentioned the association of sub-acute combined with sclerosis with cancer, Addison's disease and lymphatic leukemia. Reese and Beigler also had mentioned the similarity of observations in the two conditions. Despite the interesting similarities, in this case, the studies in the laboratories and other physical observations established the diagnosis as pernicious anemia.

Neurologic Aspect.—There was improvement, both subjective and objective, in the neurologic symptoms. This is not the rule in such cases; usually the neurologic symptoms do not remit as readily nor as completely as do the other clinical

features. Minot and Murphy in using the diet of liver, found improvement "except for the pronounced disorders due to spinal cord degeneration." Grinker found, in eleven cases, that no remissions of the neurologic symptoms occurred, although there were remissions otherwise, and he also found that the increase or decrease in number of red blood cells is not related to the neurologic changes. Hurst believed that the amount of the neurologic improvement depends on the amount of toxin affecting the nervous tissue which still remains capable of recovery if the toxin is removed. Cohen reported marked systemic improvement from the Minot-Murphy diet, but his patient not only showed no neurologic improvement, but developed a pronounced ataxia and distressing subjective nervous symptoms. On the other hand, Bubert reported a case in which neurologic and mental improvement was marked. He believed that the Minot-Murphy liver diet is of definite value in cases of sub-acute combined sclerosis. Service and Baumgartner also found improvement in both the anemia and the neurologic symptoms after three months of a diet of liver combined with treatment with eosin and ultra-violet light. These case reports are few and contradictory and no conclusions can be drawn concerning the neurologic value of the diet of liver until further cases have been studied and reported.

The Relation of the Cervical Sympathetic Trunk to Cerebral Angiospasm. By R. H. Meagher, M.D., and F. D. Ingraham, M.D.

Meagher and Ingraham comment and conclude as follows:

The curious roseate hue of the cortex *in vivo* is due to the color imparted to the opaque tissue medium by the contained blood. This can be readily demonstrated by introducing a dye into the blood stream, the color of the observed cortex changes immediately to that of the dye introduced. The salient fact to direct cortical observation in individuals at the beginning of a fit is the chalk-white appearance of the cortex. In a preparation under ether in which the cortex was exposed, the carotid of the opposite side tied and the sympathetic trunk of the same side stimulated no gross alteration of the pial vessels was observable either to the naked eye or when a four hand lens was employed.

It may be noted that in two animals in the series of Wolff and Forbes no alteration in the established average 9 per cent diminution in caliber of the vessels was noted when ether was employed as a substitute for iso-amyl-ethyl barbituric acid. When an animal is deprived of cerebral circulation for a short time, resumption of circulation is attended by convulsions. If the avascularized head is perfused with saline, recovery is never followed by such convulsions. The direct clinical observations described an obliterative angiospasm producing a startling chalky

appearance of the cortex as the immediate precursor of a seizure. Since the establishment of the fact that faradization of the cervical sympathetic trunk contracts the pial vessels the observation of Dussmaul and Tenner has again been subjected to experimental repetition. We are neither able to confirm their observations nor to offer experimental support to the rationale of sympathectomy as a therapeutic measure in the treatment of epilepsy.

Faradization of the cervical sympathetic trunk in the rabbit and cat on one side in the presence of ligation and division of the common carotid artery of the opposite side is unattended by convulsions.

OBSTETRICS

By James R. Reinberger, M.D.
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Leucorrhea, with Special Reference to Trichomonas Vaginalis. By C. H. Davis, M.D., Milwaukee, Wisconsin. *American Journal of Obs. and Gyn.*, August, 1929.

He says that leucorrhea is a very common complaint. A review of 1,000 histories of gynecologic and obstetric patients indicated that 33 per cent had some form of leucorrhea. He conveniently divided this study into four classes.

(1) Parasitic and infective; (2) Local; (3) Constitutional; (4) Circulatory.

He merely mentions the organisms found under the parasitic and infective, as this would necessarily make a distinct and separate paper. Local causes are likewise mentioned. Constitutional causes and circulatory causes only mentioned. He states that leucorrhea is an objective expression of a diseased condition, and this necessarily implies that a complete physical examination is of extreme value in ruling out constitutional and circulatory causes. Urinalysis is equally essential and of course local causes must be sought after and removed. He says that formerly only dry smears and occasional cultures were used, but from recent studies it has been found that many of our intractable leucorrhoeas have been due to the trichomonas vaginalis, which rarely can be recovered by such a procedure. For this reason the majority of his paper has to deal with this very common type of infection. He gives credit to De Lee and Greenhill for recently making a valuable contribution on this subject.

He likewise reviews the literature of trichomonas vaginalis, and is making an effort to work up the sexual life of this simple organism and has experimentally attempted to investigate the proper line of procedure in the treatment of this infection. He stresses the importance of diluting the smears with normal saline, and with the high power lens detecting the active unicellular body. His experience with different medication would

seem to give mercurochrome, glycerine, lactic acid and green soap the distinct advantage over all others. However, he states that he is simply trying to work out a routine line of treatment, which is as follows:

The active treatment of acute infections is merely mentioned only to say that local treatment is detrimental. In the chronic types he notes that chronic endocervicitis is probably the most common cause, which is best relieved by the electro-cautery, and in many cases the surgical removal may be necessary. Skene's ducts and Bartholin glands must not be overlooked, and must be eradicated by the fine-tipped cautery.

Treatment of Trichomonas Vaginalis Vaginitis.—The actual cautery can be used if the cervix is suspected to be the constant feeder of these organisms. Experience indicates that no line of treatment outlined will cure every case. The treatments should be administered at least four times a week and continued until the vaginal mucosa has healed, and pus cells and parasites have disappeared. Daily treatments may be necessary. The following plan is being tried at present:

1. A Miller speculum of proper size is inserted and the vagina dried with cotton, cleansed with 1 per cent lysol solution and again dried.
2. The entire vaginal mucosa painted with 5 per cent mercurochrome.
3. Glycerine or ichthyol (5 per cent) in glycerine and a tampon inserted.
4. A douche of lactic acid 1 per cent or lysol may be used.
5. A drying powder is at times effective. Kaolin or Bi So Dol may be used.

Intestinal infections is to be thought of, and the rectum and vagina should be cleansed with liquid soap and water morning and night during treatments, likewise after intercourse and defecation.

The reviewer has been interested in these intractable leucorrhoeas of gynecologic cases, but has been more impressed that in pregnancies the discharge has many times become profuse, and that no treatment is being given by the majority of physicians, in that they assume that active manipulation is harmful to the patient. It has been his idea to treat obstetrical cases for this profuse vaginal discharge as often as is necessary, and has found that mercurochrome 5 per cent has a decided advantage over all medications. The discharge was formerly thought to be cervical, but recently he has been making vaginal smears and finds that it is the vagina that is infected with trichomonas vaginalis, and that almost 50 per cent of all cases show this organism. The diagnosis is best made by a saline diluted smear. In gynecological cases where the trichomonas vaginalis and other mycotic infections were not present that 5 per cent picric acid proved the most valuable agent.

OPHTHALMOLOGY

By Robert J. Warner, M.D.

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Clinical Studies in Slit-Lamp Ophthalmoscopy.

By J. S. Friedenwald. *Arch. of Ophthalmology*, May, 1929.

In this paper the author does not describe the slit-lamp ophthalmoscope in detail but points out that the illuminating and observing systems are rigidly connected. The corneal contact glass is not used. The image of an illuminated slit is projected upon the retina. The maximum obliquity of the beam of light which the size of the pupil will permit is desirable. In order to eliminate chromatic aberration a crown flint doublet is inserted in the observation system with a chromatic aberration equal and opposite to that of the normal eye. Spherical aberration can only be avoided by reducing the aperture of the observing system. For direct observation a two mm. aperture seems best, but when a telescopic ocular is used a larger one is preferable.

Three lesions are described:

1. "Hole in the macula" is shown to be cystic degeneration due to injury, inflammatory disease of the eye, or spontaneous disturbance. The cases described belong under this third category. Cysts were present in two of these cases, which were later observed to have ruptured, giving the picture of so-called "hole in the macula."

2. Serous transudates near the optic disc. Such transudates are notably difficult to make out with the ordinary ophthalmoscope, though very evident to the pathologist. The absence of chromatic aberration in the slit-lamp ophthalmoscope makes their detection easy, as the network of Mueller's supporting fibers of the retina can readily be seen.

3. Sub-retinal exudates and detachment of the retina. Such exudates can readily be studied with this ophthalmoscope, due to the ability to observe the nature of the beams as it traverses the sub-retinal space.

SURGERY — GENERAL AND ABDOMINAL

By John L. Dies, M.D.

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Benign Tumors of the Female Breast. By George Van S. Smith, M.D., and George A. Marks, M.D. *Surgery, Gynecology and Obstetrics*, Volume XLIX, September, 1929, No. 3, pp. 316-321.

1. Benign breast tumors are discussed and a resume of 201 cases is given.

2. Fifty-five per cent of the series had never nursed. It is not known how many of those who had children did not nurse.

3. The majority of the periductal fibroma cases were under 30 years of age when symptoms were noticed. All of the fibro-adenoma cases were under 35. Most of the papillary cystadenoma and chronic cystic mastitis patients were over 35.

4. Abnormality of menstruation was complained of by 42.3 per cent of those who had not passed the menopause. Eighteen per cent of the series were near, at, or had passed the menopause when symptoms began.

5. Changes in the affected breast or breasts associated with menstruation were noted by 13.7 per cent.

6. Discharge from the nipple was complained of by 14.2 per cent of the papillary cystadenoma cases and 8.8 per cent of the chronic mastitis cases.

7. The duration of symptoms bore no relation to the extent or seriousness of the lesion.

8. Sarcoma was found at the primary operation in 7 per cent of the periductal cases. Carcinoma was present in 28.5 per cent of the papillary cystadenoma groups and in 1.7 per cent of the chronic mastitis cases. Thus ten, 4.9 per cent of the whole series, had associated malignant breast disease at the primary operation. Three patients, one of the fib-adenoma class and two of the mastitis group, had breast carcinoma at a later date. These make 1.9 per cent of the traceable cases.

9. Bilateral involvement occurred in 13 per cent of the periductal cases and in 35.2 per cent of the chronic cystic mastitis cases.

10. Later benign breast disease occurred as follows: periductal (21 per cent of the whole group had had one breast amputated at the first operation), 21.2 per cent; fibro-adenoma (12.5 per cent had had one breast amputated), 25 per cent; papillary cystadenoma (64.2 per cent had had one breast amputated), 10 per cent; chronic cystic mastitis (36.8 per cent of the group had had one breast amputated at the first operation), 27.7 per cent. Possibly the high percentages of recurrence are accounted for by insufficient removal of tissue at the primary operation.

11. The difference between normal and pathological breast tissue is extremely difficult to define even when a lump is present grossly. Probably many pathological breasts are unnoticed or neglected (for example, abnormal tenderness or a diffuse chronic mastitis with slight induration), until a lump appears. This will be benign in 49 instances and malignant in 51, depending on the presence or absence of the unknown biological factors are associated in cancer production.

12. The benign breast tumors have a close pathological relationship to each other. Furthermore, not only are they associated with the whole cycle of ovarian and reproductive life, but more especially with lack of normal breast function and with involution, factors which result in stasis and lack of drainage.

UROLOGY

By Tom R. Barry, M.D., F.A.C.S.,
and F. K. Garvey, M.D.
Medical Building, Knoxville

Traumatic Rupture of the Bladder with Perivesical Extravasation." By W. Calhoun Stirling, M.D., and Norvell Belt, M.D. J.A.M.A., June 15, 1929, Vol. 92.

Stirling reviews the literature on bladder injuries, adding seven cases of his own. He finds such injuries relatively rare because of bony pelvic protection. Auto accidents are the most common cause in the traumatic class.

Spontaneous rupture occurs where some bladder lesion exists. A full bladder always predisposes to rupture. Any sudden pressure or trauma to the lower abdomen in presence of full bladder may cause rupture.

Extraperitoneal tears are, in his experience, 6-1 more frequent than intraperitoneal.

The anterosuperior surface is most commonly involved with extravasation into the space of Retzius.

Symptoms most common are: hematuria, frequency, and lower abdominal pain. Inability to micturate is outstanding. Intraperitoneal rupture is accompanied by shock, nausea, and vomiting.

The diagnosis is made from history of injury, X-ray, since the pelvis is fractured in a majority of cases, and the finding of blood in urine on catheterization. The lower abdominal muscles are usually rigid. Fever and chills soon follow extravasation.

Treatment is surgical drainage of perivesical tissues and cystostomy to put the bladder at rest. Supportive measures are carried out for shock and toxicity.

Seminal Vesiculitis in Appendicitis. By W. S. Pugh, M.D. J. Urol., Vol. XXII, No. 3.

The author states that 90 per cent of vesiculitis is due to gonorrhea and that 80 per cent of males have or have had gonorrhea. He believes that the vesicles are involved in 75 per cent of gonorrhea involving the posterior urethra.

The symptomatology of this condition is that of rise in temperature, pain in back and dysuria. Sensation of bladder fullness with an apparent inability to empty bladder. Frequent bloody nocturnal emissions are quite characteristic. Even nausea and vomiting has been noted.

Diagnosis is made from appendicitis by palpating the enlarged tender vesicle by rectal examination. If the vesicle is large enough to press on the ureter, renal colic may be present. There is usually tenderness in lower quadrant, but not the rigidity that is seen with appendicitis. The spermatic cord is usually tender.

Five case reports are included where the appendix was erroneously removed.

He stresses the importance of rectal examination on all supposed cases of appendicitis in males.

GASTRO-ENTEROLOGY AND PROCTOLOGY

By Edward Guy Campbell, M.D.
1109 First Natl. Bank Bldg., Memphis

The Irritable Colon. By Jordan and Kiefer. J.A.M.A., August 24, 1929.

The term "irritable colon" has been used to define a condition in which the musculoneural apparatus of the colon has lost its coordination and correlated function with no evidence of any inflammatory process. The functions of the colon are apparently disturbed by the changes in tone and irritability.

A series of 200 cases has been studied with regard to symptomatology and roentgenographic observations. The most common symptoms were: epigastric distress with nausea and vomiting; generalized abdominal distress with gaseous eructations, distention and loss of appetite; pain in the upper left quadrant with palpitation and heart pain. Abnormal stools or the use of cathartics were evidenced in a majority of the cases. The opaque enema was used in each case and all abnormal features were noted. The roentgen findings of irritable colon were described and several roentgenograms were shown by exemplifying this condition, especially the change of tonus and irritability brought about by treatment.

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THE USE AND ABUSE OF ENDOCRINE THERAPY ON CHILDREN*

EDWARD CLAY MITCHELL, M.D., Memphis

ORGANIC therapy is one of the oldest forms of treatment. The witches' broth, made by the boiling of frogs, may have had some measure of success on account of the thyroxin contained.

The giving of drugs implies that the natural functions of the body can be influenced by chemical means. It would then seem rational that the intelligent use of these very drugs by which the body is enabled to do its own work in health should be good therapy.

Voltaire makes the statement that only the charlatan can be absolutely sure of himself.

As has been the case in other drugs, the products of the ductless glands have been used empirically. The careful clinician who tabulates and studies his results has, undoubtedly, seen some benefits. Other drugs have been used empirically, as cod liver oil, was for many years scorned by the experimentalist, until vitamins were isolated.

Unfortunately, gland therapy has fallen into the hands of the "quack" who has made great capital. Many conditions caused by the interference with the proper ratio and characteristics of internal secretions are improved by nature. Undoubtedly, a psychic element also enters when the parents read the voluminous literature sent out by practitioners and laboratories of doubtful repute.

Glandular therapy, undoubtedly, has a

place and as investigation goes on the field may become larger.

In studying this field there are three principles which should be borne in mind:

1. Does the gland in question form an internal secretion and what are its functions?
2. Can the active principle or principles of this secretion be extracted?
3. Can a method of administration of this extract be found which will admit of its utilization by the body?

There are seven glands: thyroid, parathyroid, adrenals, pituitary, gonads, pancreas and thymus, that have a definite internal secretion.

These glands are all a part of the same system. Their secretion, undoubtedly, play a part in metabolism, growth and development, as well as influences mentality. There is a distinct difference of opinion among various writers as to whether there is a protagonistic or antagonistic action among the various secretions.

In this discussion each gland will be taken up singly and the above questions answered.

THYROID

Our knowledge of the functions of the thyroid is probably more extensive and more exact than any other gland of internal secretion. The importance of the thyroid was first recognized in connection with diseases due to its pathology.

The active principle of thyroid secretion is thyroxin. This secretion plays a marked part in normal metabolism. An increase in thyroxin raises the basal metabolic rate and

*Read before the Tennessee State Medical Association, Jackson, April 11, 1929, by Dr. A. G. Jacobs.

a decrease lowers this rate. Some recent work by Kendall has shown that the acetyl derivative of thyroxin will not increase the metabolic rate, but will cause all the other growth changes. When the increase of thyroxin is inadequate certain characteristic symptoms develop. When it occurs in the adult it is spoken of as myxedema. It presents symptoms of lowered metabolic rate, subnormal temperature, slow pulse, obesity and dullness of mental characteristics. Dry skin, coarse hair, a peculiar immobility of the face, sexual apathy, brawny induration of the skin, waxy in color and does not pit on pressure. Myxedema is not due to lack of iodine in the diet; but if a patient suffering with this condition is given thyroxin in the form of thyroid extract by mouth, the symptoms will be greatly improved. It is also well known that there are many often unrecognized cases of mild hypothyroidism, especially in the child, as night terrors, constipation, nocturnal enuresis, failure to grow, sluggish mentality and umbilical hernia is present in most all cases of hypothyroidism in the child. The orthopedist claims that conditions known as knock knees, flat feet, painful heel, and curvature of the spine might be due to hypothyroidism. In all suspected cases of hypothyroidism the metabolic rate could be used as a good criterion.

Marked hypothyroidism in children is spoken of as Cretinism. These Cretins are usually dwarfed, coarse hair, open fontanelles, heavy features because of defective development of cranium; short, fat extremities, thick, heavy fingers; skin dry; lack of perspiration, umbilical hernia, sluggish mentality. So that you can see that the condition is not altogether different in many respects from the myxedema in the adult. Sporadic Cretinism may be said to be inherited, and each succeeding generation should be treated in order to correct the disturbance of that generation. The physiologist claims that there is considerable evidence to show that the fundamental defect in Cretinism is an inability on the part of the thyroid gland to take up the iodine that is offered to it. It is in the growing child, especially in the infant, that thyroid extract is valuable. If given early, before

the deformity takes place or before the mentality becomes impaired, great benefits result. This extract can be given by mouth and the full physiological effect be obtained. It is now well known that the extract in large doses is unnecessary. In the Cretin it is necessary to continue the use of this extract throughout life.

Hyperthyroidism, or goiter, is extremely rare in the infant, though occasionally seen in the young child. Its occurrence is frequent at the time of puberty and is much more often seen in the female.

An overdose of thyroid extract produces the symptoms of hyperthyroidism, which are loss in weight, marked perspiration, diarrhea, rapid pulse. In evaluating the dose, the English use the whole gland which is one-fifth as strong as the American product, or dessicated thyroid. This drug has some accumulative action.

PARATHYROID GLANDS

Unfortunately, the early experiments on thyroidectomy were complicated by the failure of investigators to discriminate between thyroid and the parathyroid tissues. The operations that were performed consisted in the removal of both the thyroid and the parathyroids. The location of the parathyroid is variable in individuals of the same species. In many instances the parathyroid is considerable distance from the thyroid and may be removed without disturbing the other gland. Complete parathyroidectomy is usually followed by a train of symptoms, most marked of which are tetany and convulsions.

Tetany is due to an increased reflex irritability as well as to an increase in the irritability of the motor nerves themselves. This tetany usually appears within a day or two after the operation, with death occurring within a week. The occurrence of convulsions is intimately related with the pronounced decrease in the calcium ion concentration in the blood. Again the physiologist says that this lowered blood calcium is probably due to an increased rate of excretion in the feces and urine. It has also been shown that these symptoms can be relieved by the injection of calcium salts. Furthermore, it

has been admitted that an animal fed little meat will not develop tetany so quickly. Injection of plain Ringer's solution will often stop convulsions, though this is not as potent as the solutions of calcium salts. While we are not justified in making the statement that the level of blood calcium is the only factor of importance in controlling tetany, we can, at least, say it is an important factor.

Recently several investigators have prepared hydrochloric acid extracts of the parathyroid glands which when injected immediately raises the blood calcium level to normal; thus controlling the symptoms of tetany, and this extract when given to the normal individual raises the blood calcium to high values. It has been further demonstrated that partially parathyroidectomized animals show a tendency towards hyperirritability under normal conditions and when this hormone is called upon to greater extent for various reasons, tetany results. Thus, it has been shown that a partially parathyroidectomized dog, becoming pregnant, will have convulsions. The above statements, while interesting, have not been borne out when applied clinically. It is now almost universally agreed that benefits can be obtained by giving an acid solution of parathyroid extract hypodermetically. No reliable data has been given to show that this extract is efficacious when given by mouth.

The statement has also been made by Paton that one function of the parathyroid glands is to remove toxic products, such as guanidin, from the blood. Until this can be shown more clearly the evidence all seems to favor that the parathyroids are glands of internal secretion.

THYMUS

The thymus gland is relatively larger in the young animal than in the adult and later in life seems to lose its glandular construction and presents an histological structure of connective tissue. Riddle shows that a small thymus in a female pigeon results in the production of eggs in which the shells were soft. Upon feeding thymus, the shell became normal. It has been definitely

shown that the thymus can be removed completely without causing death or definite abnormalities of the animal. This observation does not prove that the thymus has no influence upon metabolic processes. It may simply mean that other tissues are capable of taking over those functions in the absence of the thymus. The thymus has been discussed a great deal in recent years in connection with what is known as status thymo-lymphaticus. In this disease an enlarged thymus is associated with the occurrence of hyperplasia of lymphatic tissue in other parts of the body. Many conditions, as asthma, symptoms of pressure, and even sudden death have been laid to this condition. Recent investigation has shown that status thymo-lymphaticus, if it occurs at all, is very rare. No active principle has been isolated from the thymus secretion. No definite results have been reported from the using of thymus extract either by injection or by mouth, though again definite results have been ascribed by some charitably called "enthusiasts" to this extract. But if one encounters a true thymic problem, deep X-ray therapy offers the best solution.

ADRENALS

The adrenals consist of two parts; a central portion, or medulla, which arises from a source similar to that of the sympathetic nerves; and a cortex, which develops from the tissue similar to that from which the Gonads arise. The functions of the adrenal medulla is closely connected with the activity of the sympathetic nervous system. Removal of the whole adrenal glands is fatal within a short time, thirty-six to seventy-two hours. The removal of a large portion of the medulla does not produce death. From this one would infer that the fatal effect of adrenalectomy is due to the removal of the cortex. The symptoms of an animal dying from the removal of the adrenal cortex are: muscular weakness, over-ventilation, convulsions, low blood pressure, and low body pressure. In man, Addison's disease presents the characteristics of an adrenal cortex insufficiency. The administration of adrenalin is without beneficial therapeutic effect upon patients with Ad-

dison's disease. It may be said that we are still uncertain as to whether the adrenal cortex is a true gland of internal secretion or is a detoxicating organ and owes its importance to its ability to remove poisonous material from the body. Adrenalin was one of the first hormones to be identified and synthesized. Adrenalin more closely simulates in its action a drug than it does an internal secretion. It behaves substantially as though it stimulated structures in the same way as the sympathetic nervous system. There is a rise in blood pressure and inhibition of intestinal peristalsis and relaxation of the bronchial musculature. It produces hyperglycemia by increasing the rate of conversion of glycogen to glucose in the liver. Its chief benefit is obtained by injection only. It may have slight beneficial action when applied locally to mucous membrane surfaces. Ephedrin has a similar action but may be given by mouth and its effect not so transient.

THE GONADS (*Testis*)

It has long been known that the gonads have some effect on growth and development. Stock and poultry breeders castrate males that are being bred for slaughtering purposes, because such animals become larger and heavier on a given diet than do normal ones. It has also been shown that the eunuchs are in general tall, overgrown individuals, lacking the secondary sexual characteristics. They also differ as to voice, hair and skin. They are less mentally alert and less ambitious and less combative than the normal male. The distribution of subcutaneous fat becomes like that of the female. The effects of castration are due, not to lack of germ cells but supposedly to the absence of the so-called interstitial cells. The testis consists in a large number of seminal tubules, between which are the interstitial cells. When a testis is transplanted the germ cell producing portion atrophies very shortly while the interstitial cells remain. In such a case the animal may remain normal as to secondary sex characteristics and sexual instincts. This would seem to indicate that the interstitial cells provide the internal secretion of the sex glands. When the gonads are removed

the adrenals and thyroid hypertrophy. The significance of this interrelationship is obscure. No active principle has been isolated from the gonads. No extract has been found to be of value either by mouth or by injection. Some results have been obtained by grafting. Heterotransplants are of no benefit. Homotransplants are of temporary benefit, while autotransplants have a more lasting value. There seems to be no reason why an active preparation may not be obtained in the future, but further investigation is necessary.

OVARIES

In the female as in the male the presence of the gonads is necessary for the changes which take place at puberty. There are, in the ovary, cells homologous to the interstitial cell of the testis, but there is still much doubt as to whether the hormone produced comes from the interstitial cell of the ovary or from the corpora lutea. Removal of the corpora lutea prevents uterine hypertrophy after implantation. Several investigators have been able to show that extract has not been able to produce uterine oestrus of animals. Continued injection of this fluid induces early sexual maturity in young females. Materials of this type when used clinically in the human have seemed to influence menstruation. But follicular extract has not been able to produce uterine bleeding in women following oophorectomy. The corpus luteum is persistent during pregnancy, and injection of extracts of it inhibit the occurrence of the menses or oestrus. To obtain any benefit this extract must be given hypodermatically.

PITUITARY

The pituitary is supposed to be responsible for the production of two internal secretions. One is the anterior and the other is the posterior portion. The internal secretion of the anterior portion is growth promoting in function. Lack of this secretion before puberty leads to a group of symptoms known as Fröhlich's syndrome. Here we have abnormal growth, an altered deposition of fat referred to as dystrophy adipose-genitalis and by retention of infantile sexual organs. When there is a hyper-

pituitarism occurring in young individuals before the epiphysis are ossified, a condition known as gigantism results; in this case the individual grows very tall, due to the growth of the long bones.

If this condition occurs in adult life the stature does not increase but the long bones become thickened, particularly at their extremities and the jawbone and other bones of the face become tremendously enlarged and thickened. The bones of the hand hypertrophy making the hand broader. During the disease there is also complete lack of sexual ability. This condition is known as acromegaly. Recently it has been demonstrated that there is another hormone in the anterior pituitary and that this hormone when injected induces sexual precocity in young female rats. It is suggested that the growth promoting hormone inhibits the sexual developing hormone until puberty is reached. The weight of evidence indicates that the feeding of the anterior lobe extract has no effect either on human or animal metabolism. Evans and Long report greater growth in rats upon an injection of anterior lobe extract intraperitoneally. These rats obtain abnormal size and develop into adults much more quickly. They also develop sexual maturity earlier. There is great controversy as to the benefit of extract of the anterior gland when injected in a case showing evidence of hypopituitarism. Personally, I have seen no benefits as to stature or development. I believe that perhaps the majority of observers will concur. Certainly we have obtained no such results as we have from the thyroid extract.

The posterior lobe can be extirpated with little or no loss of function, however, here again we obtain an extract which acts more as a drug than internal secretion. When used clinically these extracts cause constriction of the smooth muscle. The action is similar to that of adrenalin but there is a different action upon the involuntary muscle fibers. As a result of constriction of smooth muscle fiber there is a marked rise in the blood pressure which persists. The constriction of blood vessels include the vessels in the coronary circulation and in the lung. But there may be dilatation in

the hepatic and renal arteries. The capillaries are also constricted by pituitrin. Krogh states that the normal tonus of capillaries is dependent upon pituitrin.

Pituitrin stimulates cardiac activity; also causes dilatation of the heart. Due to injections of this substance the respiration becomes more rapid and shallow, the bladder contracts; the gall bladder muscles increase their tonus and a marked contraction of the uterus results. This oxytotoxic action is made use of in preventing bleeding after the third stage of labor. Pituitrin stimulates the outflow of milk from the mammary glands but does not cause increased secretion. Pituitrin when injected into the normal human acts as an anti-diuretic in spite of the increased blood pressure. It has been stated that this is due to decreased permeability of the capillaries. In addition to the oxytotoxic action described above there seems to be another hormone which effects diabetes insipidus. The injection of pituitrin often stops polyuria. Diabetes insipidus is due to pathology in the pituitary, its stalk or brain tissue near by. After pituitrin injection the sugar tolerance is decreased and after extirpation of posterior lobe the sugar tolerance is increased. Again we may state that the extract is beneficial only when given by injection, or local application in the form of a nasal spray. (Baumgartner's treatment.)

PANCREAS

Pancreatic extract, which was isolated from the Isle of Langerhans, by Bunting and Best, known as Insulin, is regarded as one of the greatest medical discoveries of the age. It does not rightly enter into this discussion more than to state that it saves the lives of many infants and children who had no chance to live before its discovery. In our own clinic we have several children who developed diabetes at a very early age; one at 18 months; who are developing both physically and mentally and remaining sugar free on the proper diet. This subject is too broad for discussion here. This extract, until the present time, can be given only hypodermatically, although it had been exploited by mouth and has victims to its credit.

GLANDS	ACTIVE PRINCIPLE	INDICATIONS	HOW APPLIED	OVERACTIVITY	UNDER-ACTIVITY	REMARKS
1. Thyroid	Thyroxin	Cretinism Myxodema Mild Hypothyroid problems	By mouth only	Goiter Problems Therapeutically: 1. Diarrhea 2. Temperature 3. Loss in weight 4. Rapid heart	Child—Cretin Adult—Myxedema	"The best of all endocrine extracts" "Probably works best in harmony with all other glands."
2. Adrenal	Adrenalin—from the medullary portion of the suprarenal	Allergic conditions Shock Collapse Hemorrhage Asthma Addison's Disease Some Post-infections	Subcutaneously Nasal spray Useless by mouth	Overdose could be fatal Experience care as to idiosyncrasy	Addison's Disease	Ephedrin is an excellent substitute. Virtues: 1. Administration by mouth. 2. Prolonged action. Adrenalin is antagonistic to Insulin.
3. Pancreas	Insulin—from the Isles of Langerhans	Diabetis Mellitus Athrepsia	Subcutaneously or Intravenously Useless by mouth	Too Much Insulin Causes: 1. Irritability 2. Strabismus 3. Perspiration 4. Low blood sugar 5. Stupor	Diabetis Mellitus	Greatest medical contribution of the century.
4. Parathyroid	Unknown	Tetany Osteom Tuberculosis Low blood calcium conditions	Subcutaneously Useless by mouth	-----	Tetany	In severe tetany calcium chloride is the emergency drug. Always by vein.
5. Thymus	?	?	?	Respiratory difficulty Shock? Death??	-----	Thymic Problems best corrected by X-ray exposure.
6. Pituitary	Anterior lobe Posterior lobe	Diabetis Insipidus Frohlich's Syndrome Obstetrically	Nasal spray Subcutaneously	Gigantism	Acromegaly	Nasal application causes fewer abdominal cramps than is caused if given subcutaneously. Pituitrin is antagonistic to Insulin.
7. Gonads	1. Testicular: Corpora Lutea Ovarian Residue 2. Ovarian: Ovarian Substance	Orchis deficiencies Ovarian deficiencies	Useless by mouth Subcutaneously Subcutaneously Subcutaneously	----- Oes terus	-----	Ovarian extract by mouth is practically inert.

SUMMARY

In addition to the glands mentioned above there are other glands which may produce an internal secretion, but whose functions have not yet been demonstrated. That there is a coordination between the various internal secretions is evident. That all of these glands have their effect upon metabolism, growth, and development is evident. At the present time it cannot be definitely stated which glands are antagonistic and which antagonistic, each with the other. Probably the thyroid works more in har-

mony than any of the other glands. It would seem from careful investigation up to the present time that only the thyroid gland can be given by mouth, and has definite proven clinical benefits, not only in the severe case of Cretinism but in the mild conditions due to hypothyroidism.

The statement has been made by some that thyroid extract is of benefit in the Mongol but such has not been my experience unless the patient shows hypothyroid symptoms in addition.

Parathyroid extract when injected raises

the blood calcium. Theoretically it should have a beneficial effect, particularly in tetany. When given by mouth it is inert.

There has been no active principle isolated from the internal secretion of the thymus gland, and no proven results either by injection or by mouth.

Adrenalin, or the extract from the adrenals, when injected has definite chemical and physiological action, and definite clinical use but perhaps more as a drug than as an internal secretion. It is of little or no benefit when given by mouth.

Extracts from the gonads in the male have no proven clinical value either by injection or by mouth. The so-called ovarian extract and *corpus leutum* extracts have some clinical value when given by injection. The feeding of either *corpus leutum* or ovarian extract has been proven recently to be valueless.

Insulin needs no discussion. Its value is proven.

CONCLUSION

In conclusion, leaving out the two internal secretions, definitely proven to be of value, which are thyroxin and insulin, and the two internal secretions which have great drug value, which are adrenalin and pituitrin, one becomes almost a therapeutic nihilist when he thinks and sees the large number of cures ascribed to the extracts from the internal secretions. Perhaps the greatest harm is not by actually giving the drug, but by the false sense of security engendered where important defects might be remedied by mental training and other such useful methods.

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DR. R. E. SEMMES (Memphis): Mr. President, it is truly remarkable that a handful of glands could not only control the chemistry of the body, but also determine the growth status, the appearance of the face, the sex character, and even the emotional and the intellectual status of the individual.

There is, perhaps, no better sport than picking out the defects in the glandular system of our patients and friends and those we pass on the street, but, unfortunately, the therapeutics in this field have fallen far behind our actual knowledge and speculation upon this subject has gotten out of sight and out of reason. Our own experience is principally with the disorder of the pituitary gland associated with tumors and cysts.

It is of value to give patients with deficiency due to either destruction by tumors, pressure from cysts of the pituitary gland, thyroid extract, together with pituitrin. For the past few years it has been customary among neurosurgeons to relieve the trouble with only small amounts of thyroid extract which seems to do as much good as when the pituitary extract is added. With this slight advance and the few instances which have been mentioned by the essayist practically nothing can be done with glandular therapy. In fact, much harm may be done by administration of gland extracts.

We see children very frequently, imbeciles or idiots, those with brains damaged at birth, and mongols treated for long periods with thyroid and other gland substances very frequently with a shotgun prescription of mixed glands. This is harmful in two or three ways. In the first place, they are expensive and most families cannot afford it. In the second place, it upsets the little fellow's digestion. In the third place, it interferes with the proper training of the child both mentally and physically or recognition by the patient's family of the true condition.

In addition to these disadvantages, I might say the extract of the thyroid and pituitary gland, which have decided drug effects, may do much damage unless they are carefully controlled.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS*†‡

By I. A. BIGGER, M.D., Nashville

THE basic principles underlying the present-day surgical treatment of pulmonary tuberculosis are collapse and rest of the diseased lung tissue, and all of the operations in use may be conveniently grouped under the general term, "Collapse Therapy." Artificial pneumothorax is the most important of these procedures, and the more radical operations should be reserved for cases in which satisfactory pneumothorax cannot be obtained. Failure to obtain a satisfactory collapse by artificial pneumothorax is the result of pleural adhesions. If the adhesions are not too diffuse or massive, they may be divided by either the open or closed methods with a resulting complete collapse. If they are near the base of the lung, artificial pneumothorax may be combined with paralysis of the hemidiaphragm with gratifying results. When the disease is early or localized to the base of the lung, phrenicotomy alone may suffice. If, because of the location of the lesion or extent of the adhesions, a satisfactory collapse cannot be obtained by any combination of the above procedures, one must consider a more radical operation, and this usually means thoracoplasty. If the lesion is well localized to the apex, an attempt may be made to collapse it by external pneumolysis, or the separation of the parietal pleura from the chest wall and the insertion of some filling material as fat or muscle. Unfortunately, no entirely suitable filling material has so far been discovered, so this operation is not frequently used.

Thoracoplasty, or more properly paravertebral extrapleural thoracoplasty, is, except for pneumothorax, the most important procedure used to obtain collapse of dis-

eased pulmonary tissue, and might be termed the standard radical operation for the treatment of pulmonary tuberculosis. It may be performed with a number of minor variations, but there are certain essential features which must be observed if satisfactory results are to be obtained. They are: (1) posterior resection of the ribs, including the angles and, if possible, extending to the tips of the transverse processes of the vertebrae; (2) subperiosteal resection, so that the ribs will re-form and fix the chest wall in the collapsed position; (3) the leaving in place of the lateral portions of the ribs to support this, the thinnest portion of the chest wall, thus preventing too great mobility of the mediastinum.

The operation may be performed in one, two, or more stages, depending on the extent and type of lesion and also to a larger degree on the patient's general condition. If ten or eleven ribs are to be resected, it should always be divided into at least two stages. When there has been a preliminary paralysis of the diaphragm on the affected side, it is rarely necessary to resect more than eight or nine ribs to obtain a satisfactory collapse; but even then we frequently divide it into two stages. Brunner¹ reports a mortality of 27 per cent for the one-stage and of only 4 per cent for the two-stage procedure, and Bull² presented nearly the same figures. It therefore appears that a complete one-stage operation is rarely, if ever, justified.

The majority of thoracic surgeons prefer the two-stage operation and advise resecting the lower ribs first, thereby claiming to reduce the incidence of post-operative aspiration pneumonia in the lower lobe. We follow the procedure advocated by Alexander³, namely, preliminary resection of the

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†This work was made possible by the cooperation of Dr. B. G. Tucker and Dr. J. B. Naive of the Davidson County Tuberculosis Hospital staff, and Dr. Hollis Johnson of the Vanderbilt University Hospital Chest Clinic.

‡Read before Tennessee State Medical Association, Jackson, April 11, 1929.

¹Brunner—Quoted by Riviere, Clive. "Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis." Oxford University Press. 1927.

²Bull—Ibid.

³Alexander, John. "Surgery of Pulmonary Tuberculosis." Lea and Febiger, Philadelphia. 1925.

phrenic nerve followed by a resection of the upper ribs. Alexander suggested the upper seven ribs as the number to resect when combined with paralysis of the hemidiaphragm, but we believe it is better to fit the number of ribs as well as the amount of each rib to be resected to the individual case. The number resected in individual cases in our series has varied from three to eleven, but seven or eight will usually be necessary. We quite agree with Alexander who believes that primary resection of the lower ribs actually predisposes to lower lobe pneumonia, because the efficacy of cough is largely dependent upon the integrity of the lower chest wall and abdominal muscles. Paralysis of the diaphragm does not interfere with the evacuation of bronchial secretions, and collapse of the upper lobe usually puts the most active disease at rest, thereby drying it up. It would therefore appear on theoretical grounds that preliminary phrenicectomy, followed by resection of the upper ribs, would decrease the incidence of post-operative lower lobe pneumonia. In our series of twenty cases, all save one had a preliminary resection of the phrenic nerve, and this one had a partial pneumothorax compressing the lower lobe. All except one have had a resection of the upper ribs first. This patient had a phrenicectomy followed by resection of ribs three to nine inclusive, for the collapse of a large lower lobe cavity. There has been no lower lobe pneumonia in this series.

We suggest the following additional reasons for resecting the upper ribs first: (1) if the lower ribs are resected first, very little lung collapse is obtained until the upper ribs are resected, when the entire lung collapses: thus gradual collapse, an important feature of the two-stage operation, is largely lost. When the upper ribs are resected first, that portion of the chest wall promptly collapses, followed by collapse of the lower portion when the lower ribs are resected. (2) If the upper ribs are resected first, and the second stage is either delayed or refused, the most diseased portions of the lung will usually be collapsed and a great deal will have been accomplished; whereas if this should happen af-

ter resection of only the lower ribs, little good will have been done.

INDICATIONS AND CONTRA-INDICATIONS

The indications for thoracoplasty are often said to be the same as those for pneumothorax, but that it should be performed only in cases in which the more conservative procedure has failed because of pleural adhesions. This can hardly be true; for, while the indications and contra-indications for the two methods of collapse are somewhat similar, they must be observed much more strictly for thoracoplasty than for pneumothorax. The important indications for thoracoplasty are found in cases of chronic, unilateral, fibrous or fibrocavernous tuberculosis which do not respond satisfactorily to the usual conservative measures and in which satisfactory pneumothorax cannot be obtained. It is important that the lesion be of the productive type as evidenced by scar tissue formation and retraction. The more distinct the retraction, other things being equal, the better are the chances of a satisfactory result. Caseous or exudative lesions are frequently greatly improved by pneumothorax, but should never be subjected to thoracoplasty. Archibald⁴ expresses this view by stating that thoracoplasty is never indicated when the trachea is in the midline. Chronic cavities are an especial indication for thoracoplasty, as the mortality in patients with large chronic cavities is exceedingly high when the cavities are not collapsed. Barnes⁵ recently reported 1,454 chronic cavity cases not treated by collapse with a mortality of 85 per cent in three years.

The most important contra-indication to thoracoplasty is active disease in the better lung. Absolutely unilateral tuberculosis probably does not exist, and moderately extensive healed lesions in the better lung should not contra-indicate collapse of the more diseased lung. Extensive fibrosis or

⁴Archibald, Edward. "The Surgical Treatment of Pulmonary Tuberculosis," Canadian Medical Association Journal, Vol. 18, pages 3-9. 1928.

⁵Barnes, Harry L. and Lena R. P. "The Duration of Life in Pulmonary Tuberculosis with Cavity." The American Review of Tuberculosis, Vol. XVIII, No. 4, page 412.

active disease in the opposite lung should contra-indicate surgical collapse. Slight activity in the apex may occasionally be discounted, but radical collapse should never be performed in the presence of basal activity in the better lung.

Another contra-indication is tuberculosis of other organs, as kidneys, intestines, etc. Tuberculosis of the larynx frequently shows rapid improvement after collapse of the lung, so should be considered a contra-indication only when it is so extensive as to involve the laryngeal cartilages.

Any organic lesion of the kidneys, heart, or vascular system, which would contra-indicate other major surgery, would have the same status in regard to thoracoplasty. This is especially true of cardiac lesions, for the heart is put on an unusual strain following this operation.

Thoracoplasty may be indicated in severe hemorrhage uncontrollable by more conservative measures, even in the presence of distinct activity in the other lung.

RESULTS

The results following paravertebral thoracoplasty in well-selected cases are very satisfactory. Alexander collected 1,159 cases in 1925 upon whom thoracoplasty had been performed with the following results: 36.8 per cent cured; 24.4 per cent improved; 5.25 per cent unimproved; 33.5 per cent died. When one compares these results with those reported by Barnes, in uncollapsed cases, they appear strikingly good.

During the past fifteen months we have performed thoracoplasty upon twenty patients with advanced, relatively unilateral, pulmonary tuberculosis. The results in our cases are as follows:

Seven of these patients have been operated upon during the last three months, so are not classified as cured or improved; but five of them appear to be progressing to clinical cure, one is greatly improved, and one is not improved.

Of the remaining thirteen cases, seven are clinically well.

Two are greatly improved, and one was greatly improved for one year but recently had influenza and now appears to have a

rather extensive flare-up in the uncollapsed lung.

Two died, one shortly after operation from extension of the disease in the better lung. This patient, a colored girl seventeen years of age, had an almost complete destruction of the right lung and rather extensive active disease extending out from the hilus of the left lung. She was an extremely poor operative risk, and, although the collapse was performed in four stages, the disease in the opposite lung spread very rapidly. The other death occurred in a white man thirty-eight years of age with bilateral involvement, the most extensive involvement being on the right side. At operation only the first and second ribs were resected through a small intra-muscular incision, but since the patient was considered a poor risk, he was given a transfusion of 300 cc. of whole blood. Following this, he developed a severe reaction and died.

SUMMARY

Of the twenty patients reported in this series, seven have been operated upon too recently to justify an attempt at giving a prognosis, but five of them are apparently progressing to clinical cure.

Seven of the remaining thirteen cases, or approximately 54 per cent, are symptom-free and are classified as clinically well; and two, or 15 per cent, are greatly improved—a total favorable result of 69 per cent.

Thoracoplasty is a most important procedure and when used in properly selected cases gives very gratifying results. The indications and contra-indications must be closely observed if the best results are to be obtained. One of the deaths in our series was due to our failure to properly evaluate the importance of the activity in the better lung.

It is essential that the surgeon work in close cooperation with the tuberculosis specialist, for he can be of inestimable value in judging each individual patient's resistance and chances of recovery without operation. An experienced surgeon on the other hand should be able to estimate the chances of recovery following operation

better than anyone else, so by working together, they can obtain better results than either could hope to obtain alone.

DR. BEVERLY DOUGLAS: I feel that Dr. Bigger is to be congratulated upon his work. While I have not had an opportunity to see all or even a majority of the patients upon whom he has operated, the results speak for themselves and are certainly excellent.

The method of removing the first and second ribs, which Dr. Bigger illustrated in one of his slides, is

one of his own. It is my opinion that it is of considerable value because it allows the operator easy access to the first two ribs and fairly easy access to the third without actual division of any muscles.

I believe that all of us here will agree that the treatment of pulmonary tuberculosis in the future is going to be put more and more into the hands of the thoracic surgeon. I do not mean to imply by this that the internist will have any less part in its treatment, for no field demands closer coordination between all forces, but I do believe that the greatest advances will be brought about through surgical procedures.

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See Editorial page in September issue for information.

THE ROENTGEN RAY IN THE DIAGNOSIS OF RENAL CALCULI*

J. MARSH FRERE, M.D., Chattanooga
Roentgenologist, Newell & Newell Sanitarium

SINCE Roentgen's discovery of the X-ray in 1895 many improvements in technic and instruments have been developed which have greatly increased our accuracy in the diagnosis of renal calculi and pathology.

It was John McIntyre, of Glasgow, who reported a case in the *Lancet* of July 11, 1896, of a patient who had been previously operated upon for renal calculus; by a twelve-minute exposure, a shadow of a large calculus was shown. The patient was operated upon and the calculus found and removed. Charles Lester, in the *Archives of Roentgen Ray* for May, 1899, in an article entitled "The Detection of Calculi by the Roentgen Ray," reports seventeen cases of renal calculi diagnosed by X-ray examination, eleven of them had been operated upon and the diagnosis confirmed in all. There were negative diagnosis in five cases confirmed by exploratory operation.

In 1901, Geza-von Illyes made the first report of the use of opaque catheters to demonstrate the course of the ureters, and in January, 1906, Walker and Lichtemberg published the first report of pyelography after injection of collargol. Since their report, many other different solutions have been used of varying strength, until we are at present using a 12 per cent solution of sodium iodide which is non-irritating to the G. U. tract and gives the best results.

In reflecting back over the many difficulties that the pioneer had in demonstrating renal calculi, I always think of the story that they tell about an old doctor in our city who was a pioneer in this line. After exposing a plate (not film) for a very definite case of renal calculus for several minutes, it was given to a photographer to develop. He developed the plate in the required time and then presented it to the doctors present. Much to the doctors' sur-

prise, no calculus shadow was seen and, in fact, the plate appeared as though it had never been exposed. One of the doctors remarked, "Why, you can't see his lumbar vertebrae," to which the doctor replied, "Why, doctor, we know he has bones."

With our present-day technic we have certain finer requisities for a properly taken roentgenogram; namely, the roentgenogram includes the whole of urinary tract and must include from the last two or three ribs down to and below the inferior border of the symphysis pubis and the width of the abdomen and pelvis. Its quality must be such as to demonstrate both kidneys, the psoas muscles and the transverse processes of the lumbar vertebrae. Our technic is as follows: If the patient is from out of town as most of ours are, we first take a roentgenogram of the entire G. U. tract on a 14x17 duplitzed film with double screens, the patient being properly placed on a Potter Bucky diaphragm. Our factors are 55 to 65 K. V., 25 ma. at 25 inches distance, the time being governed by the size of the patient. If a shadow is found near the G. U. tract, then our routine preparation is ordered; namely, a saline cathartic (not castor oil) the night before; irrigation of colon in A.M.; and no breakfast. A second roentgenogram is taken and, if the shadow still remains present, our urologist is called in, and with his aid we try to locate the exact position of the stone, whether it lies in the pelvis of the kidney or in the cortex. If this does not give us the desired information, then we make a pyelogram. In the cases where no shadow is seen and the patient's history and symptoms point definitely to some kidney pathology, a thorough urological examination is done; namely, ureteral catheterization and kidney functional test followed by injection of a 12 per cent solution of sodium iodide into the kidney, pelvis and ureters, in order to rule out hydronephrosis, tumors, cysts, hydro-

*Read before the Tennessee State Medical Association, Jackson, April 9, 1929.

ureter, and obstruction or kinks in the ureters, and extra renal shadows and conditions simulating kidney pathology.

J. C. Sargent says, "If bitter experience has been the teacher of any one outstanding lesson in diagnosis, that lesson has been 'never to cut corners.' The diagnostician, whether he be urologist, radiologist or what not, who depends solely upon the plain roentgenogram in the investigation of urinary stones not only does so at the risk of occasional grave error, but in so doing fails miserably in an appreciation of the real worth of the roentgen ray in urology."

Most authorities divide stones into two types: primary or essential, and secondary. Stones of the essential type are formed without any apparent primary disease. This may not actually be the case, however, as it is probable that it is a primary factor.

The principal chemical salts that go to form different kidney calculi are given below with a short description of different properties of each, arranged according to their density or ability to cast a shadow on the roentgen ray film.

Uric acid calculi is favored by high acidity of urine by concentration of the urine, or by an increased elimination of uric acid. The older literature indicates that the most common calculus is of this nature, but a number of recent analyses indicate that the importance of uric acid and urates has been over-estimated. Uric acid calculi are formed chiefly in the pelvis of the kidney, but may pass into the bladder. They are rather hard and yellow or reddish yellow in color. In case the calculus enters the urinary bladder it may set up irritation, leading to infection; the urine will then become alkaline, calcium and ammonio-magnesium phosphates will be deposited upon the surface, and uric acid will be more or less dissolved out and replaced by phosphates.

Urate calculi occur chiefly in new-born or young infants and rarely in adults. The concretions are composed chiefly of either ammonium or sodium urate, but potassium and even calcium and magnesium urate may be admixed. Urate concretions are generally rather soft and often much col-

ored by pigments. Fortunately, urate calculi are found more frequently in the bladder (about 60 per cent), where they can be diagnosed by the cystoscope, less frequently in the ureters (about 10 to 12 per cent) and very rarely in the kidneys (about 5 per cent).

Calcium oxalate calculi are, according to many observers, the most common urinary concretions. Often they show admixtures of urates or uric acid which frequently the latter constitutes the nucleus, and when urinary infection occurs, they may in turn serve as the nucleus to phosphatic deposits. On account of the hardness and roughness of these stones they frequently cause bleeding, which may result in their being very dark in color and containing blood-pigment. They are usually first formed in the pelvis of the kidney, and arise chiefly in persons excreting excessive quantities of oxalic acid. These stones give a very distinct shadow on the roentgen ray film and as they are secondary formation they are usually large.

Phosphate calculi are formed rather rapidly as a result of decomposition of the urine, with formation of ammonia from the urea. In none does one substance occur in a pure state. Pigments of various kinds, and more or less mucous or other organic constituents of the frame work are also present. Phosphate calculi are the typical "secondary concretions," and they are formed usually in the bladder as a consequence of cystitis, but may be formed in the renal pelvis or in the urethra. Calcium taken into the food is chiefly eliminated in the feces, the amount in the urine does not vary directly with the amount in the food, and the formation of phosphatic concretions is always a matter of urinary reaction and not of diet. The urine in these cases is alkaline in reaction. These stones are irregular in outline and of medium density and therefore are shown on a roentgen film.

Calcium carbonate calculi are formed frequently in herbivora, but they are very rare in the urinary passages of man. Occasionally these are soft and chalky, but if well crystallized, they are the hardest of concretions.

Cystine and Xanthine calculi are very rare and for that reason I will not discuss them. Their density is even less than uric acid stones and therefore they do not cast a shadow.

The above salts may be found in one or more combinations in renal calculi. Usually they are single, but there are exceptions when we find multiple calculi. Morris removed 200 stones from one kidney. They may be in one side or both, or may be in one kidney and the opposite ureter. Symptoms may appear on one side and the stone be on the opposite. They vary in size and shape, some weighing as much as 100 grams, and the larger ones being irregularly branched to fit into the distorted and dilated pelvis and calices.

Although my paper is limited to renal calculi, I do not think we should neglect saying something about ureteral calculi, since they are so closely associated with renal calculi and since all ureteral calculi originate in the pelvis of the kidney. The most common points that a calculus may be caught by the roentgen ray in its travel from the renal pelvis to the bladder is given by Jeanbran.

1. One to two cm. below the renal pelvis (46 per cent).
2. At the lower end of the ureter, within its ultimate 10 cm. (51 per cent).
3. Rarely at or above the pelvic brim (15 per cent).

Ureteral calculi are usually small, ovoidal in shape, single and unilateral. If multiple and in contact they are faceted, but they are almost always elongated in one diameter and therefore do not throw a round shadow under the roentgen ray, a fact of great importance in the study of shadows. Ureteral calculi located in the lower end of the ureters have to be differentiated from phleboliths.

Extra renal shadows should be differentiated from the true intra-renal shadows, and it is here that the urologist and roentgenologist have to work together in perfect harmony, in order to obtain the best results. They should both be familiar with the other's specialty, since they are both so interdependent on each other. The extra

renal shadows which I find to be most confusing are gall stones, especially when solitary, foreign bodies in intestinal tract (under which may be mentioned fecaliths, remains of barium sulphate particles for examination of intestinal tract or the dye for visualization of the gall bladder), calcified glands, dense bone in the lateral tip of transverse process lumbar vertebrae, warts on skin, pigmented moles, post-operative scar tissue, adhesive plaster, defects in film and stones in the upper ureter.

In the majority of cases stereoscopic films will rule out extra renal shadow; however, there are several good differential points I shall mention. In the case of gall stones, their shadows are more usually multiple, outline clean cut with the outer layer rich in calcium salts, which gives a ring-like shadow with a more translucent center, while kidney calculi are usually single, irregular in shape, their form often corresponding to that of the kidney pelvis or calices, and their density homogeneous, which is quite unlike the typical gallstone shadow. Another point of differentiation is in the P. A. and A. P. views of gall stones. In the P. A. view, the shadow of the gall stone is smaller, more distinct in outline, lower in position, and nearer the vertebral column. However, if these points are not sufficient to make a positive diagnosis, then we may resort to a pyelogram or a cholecystogram. Fecaliths and other foreign bodies in the intestinal tract may be ruled out by properly preparing the patient and taking subsequent roentgenograms. Calcified glands have an irregular outline or contour which is quite characteristic. Dense bone in the lateral tip of transverse process of lumbar vertebrae and calculi in upper ureter may be ruled out by pyelograms and ureterograms. Defects in films may be ruled out by a second exposure and warts, pigmented moles, adhesive plaster, or post-operative scars by a thorough inspection before the roentgenograms are taken.

There are other pathological conditions that give rise to symptoms simulating those of renal calculi that are picked up in a roentgenological and urological examination; namely, pathology of lumbar verte-

brae, hypertrophic arthritis of lumbar vertebrae, peri-nephritic abscess, calculus in ureter, kink in ureter, hydroureter, hydronephrosis, cystic kidney, tumors of kidneys, and tuberculous kidneys.

In conclusion, I would like to leave this thought with you, that a thorough urological and roentgenological examination of the urinary tract will not only localize the calculi, if there be one present, and give us the shape, size and number, and also give us the true function of the kidney and information concerning the pathological condition present, but will help to diagnose certain kidney pathology and extra renal pathology that give rise to symptoms simulating those of renal calculi.

I have just a few slides I would like to show, if time premits, to bring out the points I mentioned in my paper.

The first five slides show the differentiation between the extra renal shadows that may be mistaken for renal calculi:

This first slide is of a patient that had multiple gallstones. The differential points that are brought out are that gallstones are usually multiple, outlines are clean cut with the outer layer rich in calcium salts which gives us this ring-like shadow with a more translucent center, while this second slide shows a single, large (silent) branching stone, homogeneous in character.

This next slide is a plain film of a case that had symptoms of renal calculi and this shadow was seen in the region of the pelvis of the kidney that may be mistaken for a renal calculi; however, this next slide, which was taken a day later, after a thorough purgation, did not reveal the shadow, which shows the value of correct preparation of the patient.

This slide is a pyelogram of a case that we rayed that proves that this shadow which we see here was extra-renal and possibly a calcified gland, which on a plain film may be mistaken for a renal calculi.

These next slides show pathologic conditions that simulate renal calculi that are picked up on roentgenological and urological examination.

This slide shows a hypertrophic arthritis of the lumbar vertebrae. This is the most

common of the pathologic conditions that we find that give us symptoms simulating renal calculi.

This slide shows a stone right here in the ureter while this next slide shows that the stone has migrated down to the level of the next vertebra, which brings out the point of the importance of raying a patient with a stone in the ureter just previous to operation.

This next slide shows a stricture of the ureter with a non-opaque stone in lower ureter.

This slide shows a hydronephrosis with a dilated ureter.

This next slide shows a perinephritic abscess (proved by operation) in which there is an obliteration of the psoas muscle and a scoliosis of the lumbar vertebrae in this region.

This next slide shows a marked destruction of the body of the fifth lumbar vertebra on the right side.

This last slide is of a case that gave a most typical history and symptoms of renal calculi, but on doing a pyelogram on her we found these two very characteristic pyelogram shadows of polycystic kidneys.

DR. J. L. MORGAN (Memphis): Dr. Frere certainly covered the subject well, and my remarks will only be to impress probably a little more fully some of the things that he has brought out.

It certainly is true that any urological case is roentgenological also, so we should not attempt to do much with any patient who is complaining of some urological condition without the assistance of the X-ray.

In making a diagnosis of renal calculi from a shadow in the region of the kidney is certainly not sufficient, as Dr. Frere has said, but must be substantiated by a thorough urological examination, including a pyelogram and cholecystogram, if necessary, where shadow is on right side, and where there is a shadow in the region of the ureter, in any of its portions, it must be ruled out by not only an X-ray catheter, but must be confirmed by the different angles of exposure with the rays, because I have seen a few cases operated on where the operator would get in and find that what looked to be a shadow in the ureter, proved to be outside the ureter. That can be ruled out, as I stated, with the X-ray by getting your exposure at dif-

ferent angles, and that error should rarely ever occur.

The symptoms of renal calculus we all know so well and we expose our patients to the rays and there is no shadow shows up, and we are inclined to believe that we are dealing with calculus, so it may be a purely uric acid calculus which will not give a shadow on the film. Then we must resort to cystoscopic means of determining whether it is a calculus in ureter or just what is causing the obstruction. We know there must be an obstruction somewhere along the urinary tract, so in this way, we are able to determine the cause of the obstruction. Following these colics, there is no real reason that we suspect renal or ureteral calculi because we see so often renal colic produced by obstruction from some other cause.

A roentgenologist at one of our local hospitals was not feeling so well, so he had an X-ray made of himself which showed a shadow below the kidney and looked to be in line with the ureter, so he decided that it must be a calculus in ureter, so on

trying to rule out ureteral calculus, he made other exposures at different angles which showed the shadow to be anterior to vertebral column, which ruled out any possible calculi in the ureter. We can go a long way with the X-rays in ruling out these shadows, if we will take these pictures at different angles.

Now as to preparation of the patient, not being a roentgenologist, but doing quite a bit of X-ray work in connection with urology, I rather prefer the oil to the saline in preparing our patients for roentgengram.

Another thing I wish to bring out is that when there is a shadow in the region of the kidney and we do a pyelogram and shadow shows above pelvis, we should not be in haste to rule out stone in the kidney, for occasionally we have a bifid ureter with double pelvis, and in such a case it is possible that the stone may be in the upper pelvis or calicies where there is no pyelographic media.

DR. J. MARSH FRERE (closing): I want to thank the doctor for discussing my paper.

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COMPOUND FRACTURES*

HENRY G. HILL, M.D., AND JARRELL PENN, M.D., Memphis

UNLIKE the vast majority of our present-day medical topics the subject of compound fractures has been an important problem with physicians of all times. The recent World War, the advent of the automobile, aeroplane and modern industrial mechanical devices have, however, increased the incidence of such injuries many fold as well as clarify many of the difficulties hitherto encountered in their management.

The diagnosis in such injuries as a rule is self-evident and shall be only mentioned without devoting any time to discussion. It is regrettable, however, that the treatment is not so simple and their very nature renders it impossible to standardize a routine treatment suitable in all cases.

Various classifications have been offered, touching on all phases of these sometimes most troublesome conditions. A simple division in two main groups, however, seems adequate and even here much overlapping will be noted. First: Those injuries in which the compound opening is produced from without in such as gunshot wounds, etc. (those produced by direct violence). Second: Those in which the opening is produced by penetration and destruction of the soft tissues by fragments of bone from within out. (Those produced in the majority of cases by indirect violence.)

TREATMENT

In all cases certain fundamental factors must be considered.

1. General condition of the patient; hemorrhage, pain and shock.

2. Reduction and immobilization of fragments at the earliest possible moment is of inestimable importance.

3. All compound fractures are potentially infected and must be considered as such.

4. (General anesthesia should be employed in a large per cent of cases).

5. The injured extremity should always be elevated well above the body level for several days after injury. An immunizing dose of antitetanic serum should be given at operation.

6. Never should the fracture be considered as secondary and left unsplinted or disregarded, regardless of the amount of destruction there has been to the soft tissues. Shock as well as infection is increased by the surgeon's failure to direct his attention to the patient's local condition.

Fractures with small perforating compound openings produced by gunshots or other external violence which we believe to be reasonably clean, should be reduced and treated as simple fractures; being constantly on the lookout for drainage from the wound, elevation of temperature, and other evidence of infection. Foreign bodies, such as bullets, small slabs of metal, etc., should be removed when same can be accomplished without functional damage or unjustifiable trauma.

The injuries which offer the greatest difficulty in treatment are those in which the destruction of the soft tissues has been extensive with much exposure of bone, whether they are due to external violence or internal laceration by bony fragments. Much discussion has taken place in recent years relative to the management of such cases. But since it is impossible in a single brief article to enumerate all the advantages and disadvantages of these different procedures, we are attempting here to outline a method of treatment which in our experience has proven most satisfactory and appeals to us as employing only sound surgical principles based on common sense.

Under general anesthesia the wound is cleaned. Cleansing of the wound is important; thorough mechanical cleansing of the wound is far more dependable than chemical sterilization. All known devitalized tissue should be removed but extensive debridement avoided. The bold surgeon

*Read before the Tennessee State Medical Association, Jackson, April 10, 1929.

who removes much normal healthy tissue impairs markedly the ultimate function of the extremity. Adequate drainage is insured by packing a sufficient portion of the wound with vaselized iodoform gauze and the remainder closed with the fewest number of loosely tied silkwormgut sutures, covering if possible all exposed bone. Drainage tubes are occasionally indicated in deep wounds of the thigh; but when employed should be removed after a short period. Pressure necrosis may be produced by allowing a drainage tube to remain in contact with the bone for a prolonged time. The fracture is then reduced unless too badly comminuted, in which case the parts are restored to as nearly normal anatomical position as possible and held in place by adequate splinting. When possible all splints



FIG. 2

CASE 1. Photographs of arm nine months after operation.

solution. Many writers advocate Dakin's solution for this purpose. We have found a weak solution of Zonite or Hychlorite to be far superior in our work. It is less irritating, more stabile, and when undiluted and well corked may be kept for a long period of time without deterioration.

When the wound contains streptococci or some other virulent infection, we advise irrigation every two hours until the acute symptoms have subsided. Sequestra are removed as they appear and the part kept splinted until the soft tissues have entirely healed. Osteomyelitis has been a very rare complication in cases that we have treated from the beginning.

In the event a delayed or non-union occurs, one should wait until all infection has subsided and the wound in the soft tissue has entirely healed before any open operative procedure is attempted. A bone graft may then be safely done. Only on the rare-

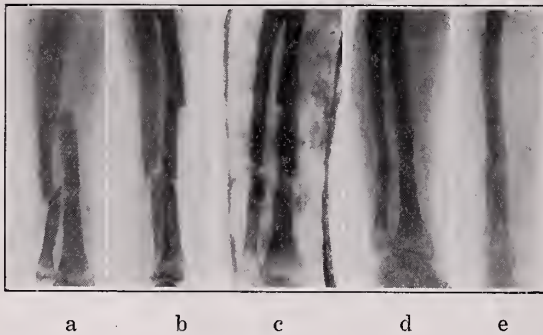


FIG. 1

CASE 1. a and b. Anterior-posterior and lateral X-ray views immediately after injury. Much destruction of soft tissues. Wounds healed with non-union of all fractures. c. A.P. view made through cast five weeks after bone graft operation. d and e. A.P. and Lat. views nine months after operation. Firm union of all fractures.

are so adjusted when first applied that the wound may be dressed daily without their having to be removed. We believe that absolute immobilization of fragments plays a most important part in preventing infection. Internal splints should never be used primarily. The patient is then placed in bed with the part elevated well above the body level. We consider this one of the most important factors in the management of compound fractures. Elevation prevents swelling, stagnation of circulation and in turn reduces infection to a minimum.

Dressing should be changed daily, all packing or tubes removed and the wound thoroughly flushed with a mild antiseptic

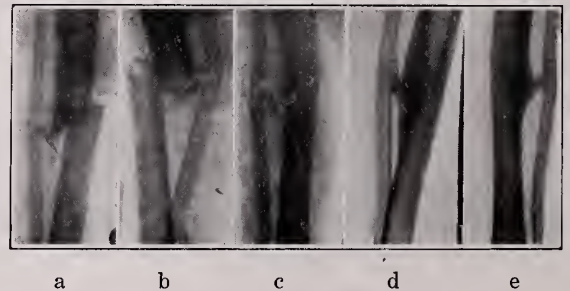


FIG. 3

CASE 2. a and b. A.P. and Lat. views compound fracture tibia and fibula immediately after injury, soft tissue injury very extensive. c. A.P. through cast three weeks after bone graft operation. d and e. A.P. and Lat. views one year after operation. Note comminution causing union between tibia and fibula.

est occasions does the operation, when properly performed, fail to produce firm bony union. Metal plates or foreign materials should never be used, as the percentage of failures following such procedures no longer warrant their use.

SPLINTING

The selection of splints is important. However, it is a matter entirely up to the surgeon in charge. He should choose a splint which holds the fragments in a satisfactory position and does not obstruct circulation. In case of comminuted fractures of the femur we have used some form of skeletal traction, when reduction cannot

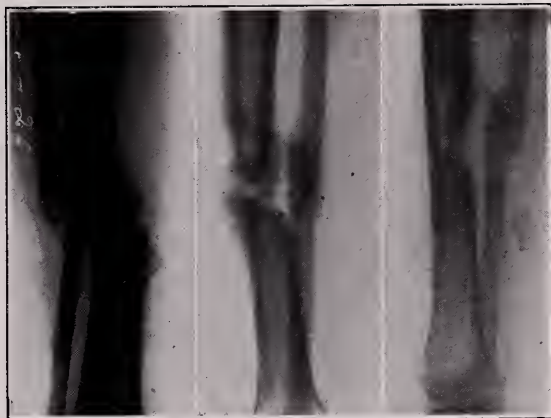


FIG. 4

CASE 2. Photograph six months after operation (right leg).

be accomplished and the fragments locked. In case a satisfactory reduction can be secured a snug plaster-of-paris case is applied. We also use plaster splints in a large majority of leg, arm and forearm injuries. A window is cut over the wound as soon as the cast is dry.

Vaseline gauze is packed around the margin of the window so that irrigation may be done without soiling the cast or allowing the solution to run on skin or under the cast. We have found that plaster when properly applied makes the most comfortable and satisfactory splint in the greater per cent of cases, otherwise some suitable extension splint is used. In this connection



a b c

FIG. 5

CASE 3. a and b. A.P. and Lat. views of old compound fracture with typical non-union nine months after injury. Soft tissues entirely healed. c. Lat. view after operation, showing graft in place.

allow me to say that unless one has at his disposal correctly made plaster bandage, it is impossible to apply a satisfactory cast, especially in cases of compound fractures. The dressing must be applied with an even distribution of pressure by a surgeon who is adept in the use of plaster, otherwise a cast has no place among the various splints which can be used in fracture cases.

THE BIG QUESTION

When to amputate, is a question that the individual surgeon in charge must answer. When the chief blood vessels have been severed and the bone badly comminuted, it is usually necessary to amputate. If one is convinced, even though it may be possible to save the limb, that the conservative policy will leave a limb distorted and useless, it is best to amputate. In the presence of gas bacillus or the more severe streptococcus infections, amputation must be considered. Indications, however, for amputa-



FIG. 6

CASE 3. Photograph one year after operation.

tions are relatively rare, and if the case is properly managed primarily the number of members of the "pegleg club" will dwindle.

CONCLUSIONS

1. That all compound fractures should be reduced and immobilized as soon after the injury as possible.
2. That radical debridement operations are rarely indicated.
3. Amputation should not be done without serious consideration.
4. All compound fractures are potentially infected.
5. Elevation of the extremity and immobilization of fragments has much to do with controlling infection.
6. Antiseptics and germicides are worth but little after infection is well established.

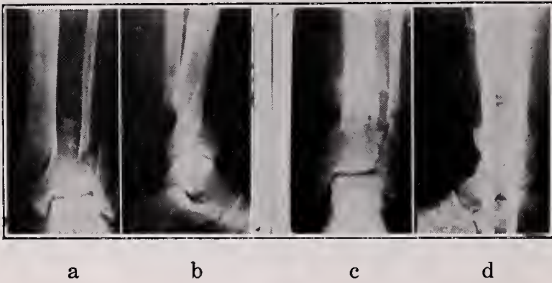


FIG. 7

CASE 4. Compound fracture tibia and fibula just above ankle. a and b. Before reduction. c and d. After reduction, resulting in primary union of fractures.

7. Osteomyelitis should rarely follow compound fractures.

8. Wound should be dressed and irrigated daily in the beginning without disturbing the fragments.

DR. DUNCAN EVE, JR. (Nashville): I enjoyed the doctor's paper on "Compound Fractures" very much. Frequently compound fractures present some of the most difficult problems for us to decide. The type of fixation, type of splint and often the question of amputation play an important part. I agree with the doctor in his statement that all open fractures should be immobilized as early as possible, also elevation of the limb.

Fractures compounded from without should be subjected to an operation, that is, if the wound is larger than the ordinary puncture wound. The majority of fractures compounded from within outward can be treated as simple fractures, with very little, if any danger.

When the entire blood supply distal to the in-

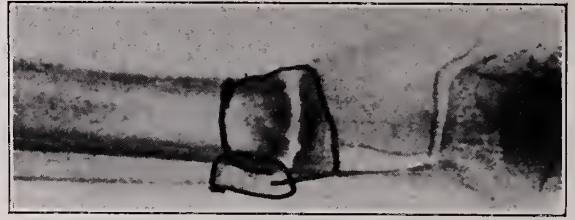


FIG. 8

CASE 5. Showing inefficiency of foreign materials in treating fractures. All wire removed and bone graft done, resulting in firm bony union.

jured part is cut off by the trauma, which gives an absence of pulse, and the surface temperature compared with the sound side, can be used as an excellent guide as to amputation.

In conclusion, there is no doubt that we are gaining more in fracture work, and this is the result of the period of immobilization being shortened, the use of bone traction, early massage and early motion. There is no doubt, we are securing better function, more useful arms and legs, with shorter periods of disability.

DR. DUNBAR NEWELL (Chattanooga): I enjoyed very much Dr. Penn's paper. I agree with some things and some things I don't agree with him at all.

The most important point is getting the fracture as early as possible. All these compound fractures are contaminated, not necessarily infected, or even potentially infected, certainly contaminated, and we don't have infection until twelve hours afterwards, and if we don't see the fracture for twelve hours after the accident, it is certainly infected by that time.

If we see them immediately, within a few hours afterwards, and they are given immediate treatment, the immediate immobilization, I agree with Dr. Penn, and if it has been a serious one with much destruction of soft tissue, then a general anaesthetic should be given the patient, is absolutely essential, and at this time, should be thoroughly cleansed mechanically.

We shave the wound dry, first, and after the wound has been shaved dry, we cleanse it with



FIG. 9

CASE 6. Another failure following fixation of fragments with foreign material.

benzine and ether; then we may use iodine or mercurochrome or just plain ether in the wound.

When we speak of debridement, the idea of a debridement, that we remove tissue that is devitalized. A debridement is the removing of tissue that we are sure will die or practically is dead at the time.

Our rule in these cases is very much as the essayist has said, that immediate immobilization and if there are fragments of bone, which are attached, and even if the fragments are detached and are difficult to get to, we do not move them, only small free fragments of bone are removed at the time of operation, but we are careful to see that we get complete hemostasis.

I do not think packing should be done or anything that interferes with circulation of this wound, as it invites infection. Any kind of a packing gauze, to a certain extent, interferes with the circulation, and that is the very thing we don't want interfered with. It is very important that we have perfect circulation.

His idea of elevation is very important. We close the wound at once, if we have gotten complete hemostasis. We use a little thin, rubber drain wick. If there isn't considerable drainage, we close the wound completely at the time, and complete immobilization with a cast.

We rarely cut a window. I, personally, think it is very bad to leave a window in any compound fracture, and, personally, we never leave a window. If we left a drain, we never look at the wound for thirty or sixty days. It isn't necessary to go back and dress that wound. We treat one a week of these compound fractures, and the rarest cases, we look at a wound after a week or ten days. Otherwise, we never look at them.

I have many, many cases where I have kept a cast on for thirty to sixty days before removing the stitches. It isn't necessary to look at the fracture, you get along without ever looking at it or ever paying any attention to it at all, if it has been properly treated the first time, although we inspect dressing carefully and frequently.

We don't remove drain for seventy-two hours. I have even left this drain in for two or three weeks. It doesn't do any harm. They get along splendidly.

As to the question of amputation, this is an important one. It all depends upon the blood supply. We can save almost any limb and do bone transplantation, if you have a blood supply distant to the point of fracture.

When the posterior tibular is not pulsating, sometimes it isn't severed, I have, in doing the operation, found that there was pressure, and when the pressure is relieved we got the pulsation and were able to save the limb.

Just recently I had such a case. The boy had received a gun-shot wound and the entire load of bird-shot tore through the calf of the leg at close range. The limb was cold, bluish in appearance, and I thought that an amputation would be neces-

sary; but, before deciding to amputate, I did a careful debridement, and to my great surprise and pleasure, I found that the posterior tibial artery was being pressed upon by large blood clots, and, after removing the blood clots and devitalized tissue, the posterior tibial began to pulsate, the circulation to return to the limb, and I was able to save this boy's leg without doing any amputation whatever.

DR. JARRELL PENN (closing): I wish to thank the gentlemen very much for their discussions. Am really surprised that they were so lenient with me. Also, want to thank Dr. Newell for the correction of terminology. Perhaps "contamination" would have been more appropriate than "potential infection."

If the surgeon limits the use of the term "debridement" to the removal of only known devitalized tissue, then I agree that this should be done. We have seen, however, many cases in which a so-called debridement operation has been performed with the removal of much normal healthy tissue, markedly impairing the ultimate functional result of the extremity. It is this boldness on the part of the surgeon that I wish to discourage.

Relative to packing the wound: In the substance of this paper we desired to make it clear that all exposed bone should be covered by suturing tissues over it; leaving open one end where there is no exposed bone. A loose pack of vaselized iodoform gauze is placed in the opening to allow drainage. We feel that the presence of serum and blood in the wound would have more tendency to invite infection than if it was let out. We are fully aware of the fact that primary closure with immobilization in plaster cast, and the wound not disturbed for some weeks, is advocated by some writers. Perhaps, many of you heard an address by Dr. H. W. Orr, of Lincoln, Nebr., at the meeting of the Tri-States Medical Society, two years ago, advocating the primary closure of compound fractures or even in infected cases he does a clean-up operation, packs the wound tightly with vaseline gauze, applies a splint and does not disturb the dressing for several weeks. Must admit that I am afraid to carry out this procedure. It is true that some of the cells on the surface of the wound are destroyed with each dressing, but if the part is absolutely immobilized and dressing carefully changed, have not noticed that daily dressings retard the progress of healing materially; and certainly an infection can be discovered and cared for much earlier than if we wait for development of systemic symptoms before looking at the wound.

We have seen many cases treated by primary closure which came to us later and when the cast was removed it was found actually to be a boot filled with pus, with much erosion of the skin. This is probably what has prejudiced me against leaving any compound opening covered with a cast unless it is made under very strict aseptic precautions on the operating table.

TWO CASE REPORTS WITH AUTOPSY FINDINGS*

1. COCKLE-BURR IN BRONCHUS

2. CARDIOSPASM

RICHMOND MCKINNEY, M.D., Memphis

Professor of Oto-Laryngology, University of Tennessee School of Medicine

The case that I am reporting is an example of fatality following an error in diagnosis of a pulmonary foreign body. This case came to my service at the Memphis General Hospital, at a time when I was absent from the city, and was handled by my assistant, Dr. Charles K. Lewis, who himself was misled by the opinions given that the child had broncho-pneumonia. Furthermore, the condition of the patient was such, as will be noted in the history, that bronchoscopy was regarded as a hazardous undertaking in his case. Perhaps if the foreign body had been removed the child might have recovered, but, as is well known, the reaction to graminaceous types of foreign bodies is so intense that fatality may follow even after the removal of a foreign body of this character.

Negro, male, aged 9 years, well-developed, well-nourished, admitted to hospital February 7, 1929, with history of having "swallowed" a cockle-burr one week before admission.

Following this, the patient developed a cough which has continued ever since. He complained of pain over the sternum, which was sharp, cutting in character, and aggravated by coughing. The only history obtainable was that given by the patient.

On admission the temperature was 105.2. Total white count, 19,700; polys, 76; large lymphocytes 24. The patient complained of pain in the left chest, and preferred lying on that side, but appeared to be fairly comfortable.

Admitting diagnosis: Possible foreign body in bronchus; pneumonia, lower left; possible lung abscess.

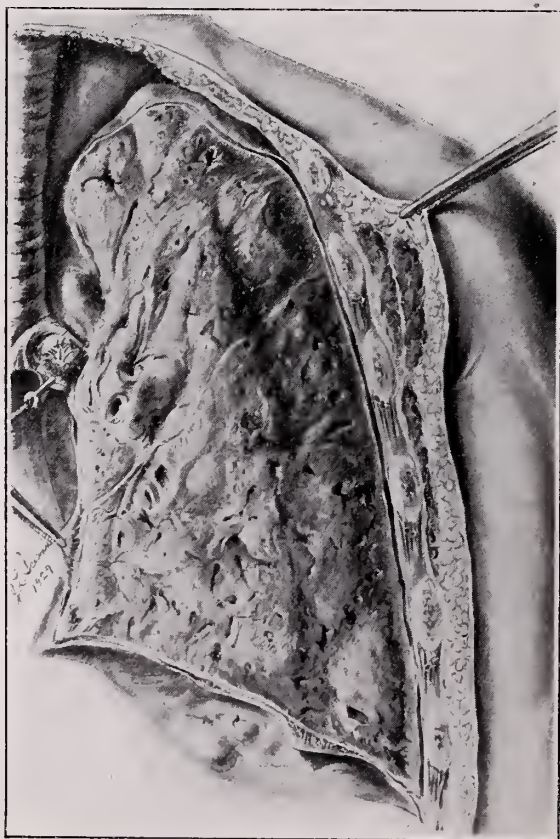
On the day following admission a bronchoscopy was attempted, without anesthesia. The child struggled violently, and in view of a high temperature, which had risen again to 105, it was considered advisable to wait for consultation from pediatrics, as the condition closely resembled a broncho-pneumonia.

Opinion of the pediatrics department was that the patient suffered from a broncho-pneumonia, involving left upper lobe, anteriorly, and axillary regions. This opinion was borne out by X-ray examination. No foreign body seen. No evidence of lung abscess.

The child continued to run a remittent temperature, with elevation ranging from 105 to 106. He appeared restless, and coughed a great deal.

On February 19th, twelve days after admission, he died.

*Read before the American Laryngological Association, Fifty-first Annual Congress, Atlantic City, N. J., May 20, 21, and 22, 1929. From Department of Oto-Laryngology, University of Tennessee School of Medicine.



Necropsy report: Cockle-burr in left primary bronchus, gangrenous broncho-pneumonia, involving almost all of both lobes of left lung; hyperplastic lymphadenitis of bronchial nodes; parenchymatous degeneration of viscera; acute hyperplastic splenitis.

Cause of death: Gangrenous broncho-pneumonia of left lung, following aspiration of cockle-burr into left primary bronchus.

It is a rare thing that a cardiospasm comes to autopsy, since cardiospasm in itself is not a fatal condition, but this case which I report died from an intercurrent broncho-pneumonia, so we had an opportunity of studying the esophagus after death.

The accompanying sketch, made by Mr. Scianni, the artist in the Department of Pathology of the University of Tennessee School of Medicine, is an excellent reproduction of the appearance of the esophagus after it had been removed. I was especially struck by the fact that the spasm continued after death, although naturally it would be expected that, since this is supposed to be a reflex condition, the stricture would be found relaxed on autopsy.

Very emaciated negro female, aged about 45, was admitted to the hospital December 29, 1928, with admitting diagnosis of bronchitis and influenza.

Patient stated that she had been ill for two weeks previous to admission, and complained of general malaise, fever, nausea and vomiting. She said that she weighed 185 pounds four years ago. Present weight, 95 pounds. Has lost 35 pounds last two or three weeks. Four weeks ago she had generalized aching and weakness, and vomited nearly everything she ate. This regurgitation was marked throughout her stay in the hospital.

On physical examination heart and lungs were negative. There was slight tenderness over abdomen and epigastrium. No masses and no rigidity. Pulse and temperature normal.

Total white count 9,450. Total red count 4,150,000. Hemoglobin 70. Urinalysis negative. Kahn negative.

Following admission to the hospital, patient had severe nausea and vomiting, and on one occasion vomited bright blood.

X-ray examination showed marked con-

striction of the esophagus at the cardia, with no irregularity of contour at this point. Marked dilatation of the esophagus extending from cricoid to cardia.

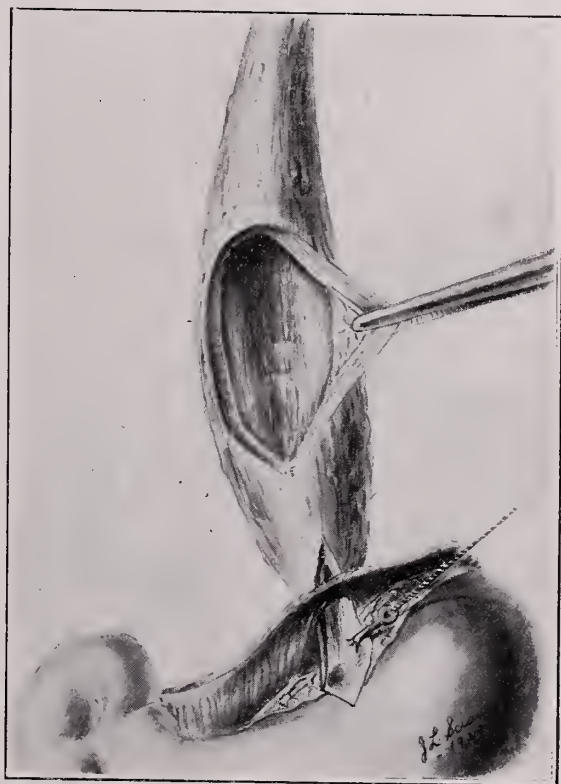
On January 7, 1929, an esophagoscopy was attempted, without anesthesia, but was unsuccessful, due to nausea and vomiting of patient.

The following day another examination was made, and a 9 mm. esophagoscope passed without difficulty under ether anesthesia. At the cardia a stricture was encountered, but no budding or ulceration seen. A large amount of fluid and undigested food particles, estimated at nearly two quarts, removed.

On January 9, 1929, a gastrostomy was performed. Patient was fed through this for ten days, during which time she developed a bilateral broncho-pneumonia, with empyema, and died January 19, 1929.

Necropsy report: Stricture of esophagus due to cardiospasm. Acute localized fibri-nopurulent peritonitis; emaciation; empyema and atelectasis, right; broncho-pneumonia, bilateral.

Cause of death: Empyema, right; broncho-pneumonia, bilateral.



THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

H. H. SHOULDERS, M.D., Editor and Secretary

NOVEMBER, 1929

EDITORIAL

It is necessary from time to time to discuss the question of membership in the State Society. At the present moment we have a membership of 1,597. At the end of 1928 we had a membership of 1,662. We should add to the roll of membership this 65 before the end of the year.

A careful analysis of the membership has been made, and the figures show in the four large counties as follows: A gain of 16 in Hamilton County and a loss of 2 in Knox, 7 in Shelby, and 20 in Davidson. In the four largest counties in the state there is a net loss of 13 members. In the remaining organizations throughout the state there is a gain in some counties of one or two members and in others a loss of two or three.

It is impossible to travel a representative through all the counties in the state, and it would be very unprofitable, too, because, as has been made plain heretofore, this office does not pass upon the question of membership. A certificate of membership in a local component society, accompanied by the dues of \$4.00 per year, is the basis of membership in the State Society.

In so far as we know, there is only one county in Tennessee that was 100 per cent organized in 1928, and that county was Maury. Every doctor who was eligible to membership in the Maury County Medical Society and in the State Society was a member.

The responsibility of bringing into organized medicine all of the doctors who are eligible to such membership rests primarily with the officers and members of the local component societies.

The following figures will show the condition in the various counties as compared

to last year. A plus before the figure denotes an increase by the number designated, and a minus before the figure denotes a decrease. No change is denoted by 0. Officers of county societies with a minus before the figures are requested to get busy.

First District—Carter County, —1; Cocke County, 0; Grainger County, —1; Hancock County, +1; Johnson County, 0; Unicoi County, +1; Claiborne County, —6; Sevier County, +1; Washington County, —4; Hawkins County, —2; Greene County, +2; Sullivan County, 0.

Second District—Anderson County, —1; Blount County, —2; Campbell County, —1; Hamblen County, 0; Jefferson County, —4; Knox County, —2; Loudon County, +2; Roane County, +3; Scott County, —8; Union County, —2.

Third District—Bledsoe County, —1; Bradley County, —1; Franklin County, —1; Grundy County, —3; Hamilton County, +16; Marion County, —2; Meigs County, —2; Monroe County, +2; McMinn County, +2; Polk County, 0; Sequatchie County, 0; Van Buren County, —1; Warren County, —2; White County, +3.

Fourth District—Clay County, 0; Cumberland County, 0; Fentress County, —4; Jackson County, 0; Macon County, —1; Morgan County, —2; Overton County, +8; Pickett County, —2; Putnam County, —1; Rhea County, —2; Smith County, 0; Sumner County, +1; Trousdale County, —1.

Fifth District—Bedford County, +1; Cannon County, —4; Coffee County, +2; DeKalb County, —2; Lincoln County, —5; Marshall County, —6; Moore County, —1; Rutherford County, +4.

Sixth District—Cheatham County, —2; Davidson County, —20; Montgomery County, +4; Robertson County, 0; Stewart County, —1.

Seventh District—Dickson County, +1; Giles County, 0; Hickman County, +1; Humphreys County, —7; Lawrence County, +1; Lewis County, 0; Maury County, +3; Wayne County, —1; Williamson County, —1.

Eighth District—Carroll County, —3; Chester County, +1; Decatur County, 0; Fayette County, —2; Hardeman County, +1; Hardin County, 0; Henderson County, —1; Henry County, +1; Madison County, +5; McNairy County, +5; Perry County, +1.

Ninth District—Crockett County, —3; Dyer County, —5; Gibson County, —4; Haywood County, +2; Lake County, —3;

Lauderdale County, 0; Obion County, —4;
Tipton County, —14; Weakley County, +1.
Tenth District—Shelby County, —7.

ANNUAL MEETING

The next annual meeting of the State Society takes place in Nashville, Tenn. The host society is already actively at work in making preparation for the entertainment of the largest attendance this society has ever experienced. This meeting will be in the nature of a celebration of the hundredth anniversary of organized medicine in Tennessee.

Medicine has made tremendous progress in that period. Medicine in Tennessee has made tremendous progress. Tennessee doctors have made notable contributions to this progress. We are proud to believe that today Tennessee has the best profession as a whole of any state in the Union.

Contributions to medical progress have been made by men located in large and small communities. We are anxious to portray the steps in this advance or compare the present with the past by means of an exhibit in so far as is possible. We are anxious to place on exhibit material from any locality within the state that would add to the completeness of the exhibit. If this effort is successful, it will be because that every organization has contributed something. We have asked that each local society appoint a committee on exhibits. Several counties have done so; many others have not yet done so. Those who have not done so are earnestly requested to do so. The host society and the program committee have an enormous task before them. We want the co-operation of the entire society in making this meeting pleasurable and instructive.

HISTORIC COMMITTEE

The historian who has been given the task of writing the medical history of Tennessee under the direction and supervision of the Committee on Medical History has made such progress in recent weeks as to guarantee a volume that will be of great interest to the entire membership.

NEWS NOTES AND COMMENTS

The Fayetteville papers report that Dr. L. L. Sheddan, of Knoxville, is planning to locate in Fayetteville.

Dr. S. F. Strain, formerly connected with the Polyclinic of Memphis, has accepted a position on the staff of the Mississippi State Sanatorium.

Dr. James C. Overall announces the opening of his offices in the Bennie-Dillon Building, Nashville, practice limited to Pediatrics.

It has been announced that Dr. Sam P. Bailey, formerly of Nashville, has become associated with Drs. Bruno W. Bierbauer and Herbert T. Wikle, 43 Pierrepont St., Brooklyn.

NOTICE: I wish to inform the subscribers of the *Medical Interpreter* that I have resigned as editor of this publication, in December, 1928, and that I am no longer responsible in any manner for the actions of its promoters.

ALBERT ALLEMAN, M.D.,
Washington, D. C.

Dr. W. J. Mayo, surgeon and chief of the staff at the Mayo Clinic of Rochester, Minn., adversely criticised hospitals today in addressing the 12th annual hospital standardization conference which prefaces the clinical congress of American College of Surgeons.

Dr. Mayo charged the hospitals with too much salesmanship and too little humanity.

Supersalesmanship in management of some hospitals often resulted, he said, in the patient being placed in surroundings which, however they might appeal to his esthetic sense, were above his means.

"My own experience has been that patients, in a well-planned, even moderate degree of privacy, on the whole will make a quicker recovery than in a private room with two attentive nurses who unobtrusive-

ly in caring for the physical needs and increasing the happiness of the patient, may suggest a mental state in which the diseased condition is exaggerated sympathetically, he said.

Dr. Mayo defended the trained nurse, declaring that at present her fine training was wasted in scrubbing floors, making beds, giving patients baths and other tasks a hospital maid could be trained to do in six months.

Dr. Franklin H. Martin, president of the congress, came to defense of hospitals. He said the average cost of hospital bed and board, which included general nursing, was lower than the cost of a similar room and board in a respectable hotel.

Tennessee has 460 fewer doctors than it had thirteen years ago, in the face of an estimated population increase of 200,000, Dr. O. W. Hymen, administrative officer of the University of Tennessee, revealed in his annual reports.

Between 1919 and 1927 there was an average loss of fifty physicians a year from death and retirement, but during 1927 and 1928 the loss averaged only eight annually. From 1923 to 1929 there was a loss of 231 physicians in the state.

"By the year 1931 there should be as many new graduates as there are losses and thereafter colleges should graduate enough new doctors to produce a slow increase," the report stated.

During the period from 1923 to 1929, Memphis showed an increase of fifty doctors, Nashville 56, Knoxville 22, and Chattanooga 19. Decreases were noted in rural communities. Memphis, Nashville, Knoxville, Chattanooga, Johnson City and Bristol showed a surplus of doctors in the 1929 survey, on the basis of one doctor being sufficient for 1,000 population. Memphis has one doctor for every 452 inhabitants.

A shortage of doctors was shown in nine counties in East Tennessee, twenty-five Middle Tennessee and twenty in West Tennessee.

MEDICAL SOCIETIES

Blount County—The following papers have been read before the Blount County Medical Society:

October 17th, "Intestinal Obstruction," by Dr. J. E. Carson; discussion opened by Dr. E. H. Lowe.

October 24th, "Bronchiectasis," by Dr. G. E. Hannah; discussion opened by Dr. J. E. Hall.

October 31st, "Jaundice and Its Significance," by Dr. S. S. Kittrell; discussion opened by Dr. J. E. Carson.

November 7th, "Management of Malnutrition in Children," by Dr. B. E. DeLozier; discussion opened by Dr. G. D. Lequire.

November 14th, "Treatment of High Blood Pressure," by Dr. J. E. Hall; discussion opened by Dr. J. W. Norton.

On October 24th, the following physicians were appointed on the Historic Committee for Blount County: J. A. McCulloch, chairman; A. M. Gamble, and W. B. Lovingood.

Davidson County—October 8th, Dr. W. R. Cate was the essayist, his subject being "Edema"; discussion opened by Drs. Sidney Burwell and F. B. Dunklin.

October 15th, "Some Remarks on the Early Diagnosis of Pulmonary Tuberculosis," by Dr. Hollis Johnson. Dr. R. R. Crowe opened the discussion.

October 22nd, Dr. H. L. Douglass spoke on "Urinary Obstruction Due to Prostatic Hypertrophy." Dr. Perry Bromberg opened the discussion.

October 29th, "Gastro-Enteritis," by Dr. A. Graeme Mitchell, Professor of Pediatrics, University of Cincinnati. Dr. Mitchell's address was made possible by the Nashville Academy of Medicine and Davidson County Medical Society scholarship fund, which was established last year. This is the first out-of-town speaker provided by this fund. It is planned to bring outstanding men to Nashville by this means about two or three times a year in the future.

November 5th, Dr. C. C. McClure gave "X-Ray Demonstrations of Interesting Cases."

CORRECTED ROLL OF COUNTY SOCIETIES

COUNTY	PRESIDENT	SECRETARY	MEETING DATE
Anderson	H. F. Stiltner, Windrock	J. S. Hall, Clinton	1st Mon., 2 P.M.
Bedford	John W. Sutton, Petersburg	W. H. Avery, Shelbyville	3rd Thurs., 2 P.M., Dr. Ray's office.
Benton	See Carroll County.		
Blount	K. A. Bryant, Maryville	J. A. McCulloch, Maryville	Every Thurs., 8 P.M., First Natl. Bank Bldg.
Bradley	W. H. Sullivan, Cleveland	E. R. Ferguson, Cleveland	1st and 3rd Thurs., 7 P.M., Court House.
Campbell	J. W. Presley, Pioneer	F. A. McClintock, Newcomb	
Carroll	H. T. Collier, McKenzie	A. C. Elinor, McKenzie	Carroll, Weakley, Benton, Henry, 2nd Tues., Hotel Lynn, McKenzie.
Carter	J. L. Cottrell, Elizabethton	E. T. Pearson, Elizabethton	1st Mon., 7 30 P.M., First Natl. Bank Bldg.
Cheatham	W. S. Lockert, Ashland City	P. L. Pitt, Ashland City	
Chester		J. D. Anderson, Henderson	
Claiborne	See Hancock County.		
Clay	See Macon County.		
Coke	A. L. Proffitt, Newport	J. E. Hampton, Newport	1st Tues.
Coffee	R. L. Dossett, Tullahoma	E. P. Vaughan, Manchester	1st Thurs.
Crockett	See Dyer County.		
Cumberland	E. W. Mitchell, Crossville	V. L. Lewis, Crossville	Cumberland, Overton, White, 3rd Thurs.
Davidson	J. O. Manier, Doctors' Bldg.	Sam P. Bailey, Doctors' Bldg.	Every Tues., 8 P.M., Doctors' Bldg.
Decatur		J. L. McMillan, Decaturville	
Dickson		R. P. Beasley, Dickson	
Dyer, Lake and Crockett	C. A. Turner, Dyersburg	E. H. Baird, Dyersburg	1st Wed., monthly.
Fayette		J. W. Morris, Somerville	Fayette-Hardeman, 1st Thurs.
Franklin	L. A. Templeton, Winchester	John P. Grisard, Winchester	Last Fri., 7 P.M., Court House.
Gibson	W. C. McRee, Trenton	George E. Spangler, Humboldt	
Giles	A. M. Allen, Buford	W. J. Johnson, Pulaski	(Monthly)
Greene	L. E. Coolidge, Greeneville	M. A. Blanton, Mosheim	2nd Tues., 7 P.M.
Hamilton	J. H. Revington, Volunteer Bldg.	S. F. McIntosh, Volunteer Bldg.	Each Thurs., 8 P.M., Manufacturers' Association Bldg.
Hamblen	William E. Howell, Morristown	C. T. Carroll, Morristown	
Hancock, Claiborne, Union		I. N. Ford, New Tazewell	2nd Mon.
Hardeman	See Fayette County.	J. Y. Alexander, Middleton	1st Tues. in Jan., April, July and October, Belivar.
Hardin, Lawrence, Lewis, Perry, Wayne	J. T. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tues.
Hawkins		J. S. Lyons, Rogersville	
Haywood	J. M. Chambers, Brownsville	J. L. Edwards, Brownsville	Last Tues., 7 P.M.
Henderson		J. F. Goff, Lexington	
Henry	R. G. Fish, Paris	A. A. Oliver, Paris	(See Carroll County).
Hickman	C. V. Stephenson, Centerville	L. F. Pritchard, Only	
Humphreys		W. W. Slayden, Waverly	
Jackson	J. D. Quarles, Whitleyville	L. R. Anderson, Gainesboro	1st Fri., Court House. (See Macon County.)
Jefferson		B. M. Tittsworth, Jefferson City	
Johnson	See Sullivan County.		
Knox	Ray DePue, West Church St.	Jesse C. Hill, 4323 Lyons View Pk.	Every Tues., 8 P.M., Medical Bldg.
Lake	See Dyer County.		
Lauderdale		W. V. Sanford, Ripley	2nd Thurs.
Lawrence	See Hardin County.		
Lewis	See Hardin County.		
Lincoln	D. T. Hardin, Fayetteville	J. V. McRady, Fayetteville	
Loudon	W. H. Harrison, Loudon	J. G. Eblen, Lenoir City	1st Thurs., Loudon; 3rd Thurs., Lenoir City, 7 P.M.
Macon	M. H. Allen, Lafayette	P. East, Lafayette	1st Wed., each quarter.
Madison	J. R. Thompson, Jackson	B. C. Arnold, Jackson	1st and 3rd Tues., 7:30 P.M., Y. M. C. A.
Marshall		J. A. Hardison, Lewisburg	4th Thurs.
Maury	Watt Yeiser, Columbia	W. K. Shedd, Columbia	2nd Mon., 11 A.M., Elk Lodge Room.
Monroe	H. C. Shearer, Madisonville	H. M. Kelso, Madisonville	2nd Tues., Aug., Sweetwater.
Montgomery	C. N. Keatts, Clarksville	Bryce F. Runyon, Clarksville	3rd Thurs. night.
Morgan		J. F. Love, Lancing	
McMinn	J. R. Nankivell, Athens	C. O. Foree, Athens	2nd Thurs., 2 P.M., Dr. Nankivell's office.
McNairy	R. M. Hendrick, Selmer	H. C. Sanders, Selmer	3rd Thurs.
Obion	C. B. A. Turner, Union City	F. B. Kimzey, Union City	
Overton	See Cumberland County	A. B. Qualls, Livingston	3rd Fri.
Perry	See Hardin County.		
Polk	C. W. Strauss, Copperhill	F. O. Geisler, Isabella	
Putnam	H. H. Taylor, Cookeville	C. P. Martin, Cookeville	1st Thurs., 1:30 P.M.
Roane	R. E. Regester, Rockwood	T. H. Phillips, Rockwood	1st and 3rd Tues., 1 P.M., Red Cross Rooms.
Robertson	J. S. Freeman, Springfield	W. F. Fyke, Springfield	3rd Tues.
Rutherford		J. A. Scott, Murfreesboro	
Sevier	Ashley W. Ogle, Sevierville	R. J. Ingle, Sevierville	1st Mon., 7 P.M., First Natl. Bk. Bldg.
Sullivan	T. B. Yancy, Kingsport	H. S. Smythe, Bristol	
Shelby	O. S. McCown, Bank of Com. Bldg.	A. F. Cooper, Bank of Com. Bldg.	1st and 3rd Tues., Medical Arts Bldg.
Smith	R. E. Key, Monoville	B. J. High, Elmwood	1st Fri.
Sumner	L. M. Woodson, Gallatin	John R. Parker, Gallatin	
Unicoi	R. E. Stack, Erwin	J. R. Moody, Erwin	Every other Thurs.
Union	See Hancock County.		
Warren		John S. Harris, McMinnville	1st Wed., 1:30 P.M.
Washington	C. W. Friberg, Johnson City	Edward T. Brading, Johnson City	2nd Thurs. at noon, Hotel John Sevier.
Wayne	See Hardin County.		
Weakley	T. B. Wingo, Martin	J. E. Taylor, Dresden	3rd Wed., May, Aug., and Nov., at Martin. Also see Carroll County.
White	J. E. Mathis, Bearden	S. E. Gaines, Sparta	2nd Thurs., Dr. Gaines' office. See Cumberland County.
Williamson		K. S. Howlett, Franklin	2nd Tues.
Wilson	L. D. Allen, Smithville	J. R. Bone, Lebanon	Thurs. after 1st Wed., 2:00 P.M.

Dr. Hilliard Wood reported a "New Method of Removing an Open Safety Pin from Stomach and Esophagus."

Dr. G. W. Crile, Cleveland, Ohio, will address the Nashville Academy of Medicine on December 9th. His subject will be "The Influence of the Thyroid and Adrenals on the Production and Treatment of Peptic Ulcer." A cordial invitation is extended to all members of the profession in Tennessee, and especially those in Middle Tennessee, to be present.

Giles County.—A meeting was held on October 24th with twelve members present.

Dr. Herman Spitz, of Nashville, gave a very interesting paper on "Autogenous Vaccine in Respiratory Infections," which was freely discussed by all members present.

Benton-Carroll-Henry-Weakley.—On October 8th, the regular monthly meeting was held at Hotel Lynn. A representative attendance was present and a number of good papers were read and discussed.

Hamblen County.—The monthly meeting was held on October 8th. Drs. A. H. Lancaster and R. G. Waterhouse, of Knoxville, were present and gave interesting papers, which were followed by a round table discussion.

Hamilton County.—The 14th annual clinical congress of the Chattanooga and Hamilton County Medical Society was held on October 3rd. More than one hundred operations were performed at the various hospitals of the city.

Lunch was served to all visitors at the Erlanger Hospital at 12:30 P.M. At 6:30 the annual banquet was served at Hotel Patten. Scientific papers were read after the banquet and the day was closed with four five-minute papers of an X-ray symposium.

Five County.—The Five County Society met at Linden on October 29th. Dr. T. J. Stockard, Lawrenceburg, read a paper on "Differentiating Aortic Aneurism and Mediastinal Tumor." Dr. Perry Bromberg,

Nashville; Dr. A. O. Kirk, Linden, and Dr. E. M. Culp, Clifton, also presented papers.

Knox County.—Late October programs were as follows: October 15th, Dr. Ella J. Day, of the Child Welfare Department of University of Tennessee.

October 22nd, Dr. Martha Koehene on "Proteins."

October 29th, Dr. Dewey Peters on "Some Considerations in Peptic Ulcer." Drs. Smoot, Roberts and Nash led the discussion.

Drs. S. R. Miller, W. S. Nash and L. L. Sheddian were appointed as a committee to collect exhibits from Knox County for the next State meeting.

Monroe County.—At the regular October meeting at Sweetwater, Dr. R. C. Kimbrough, of Nashville, spoke on "Rickets." Dr. William D. Riley spoke on "Control of Venereal Diseases" and Dr. A. H. Lancaster, of Knoxville, talked on "Diseases of the Skin."

Henderson-Decatur-Chester.—On the second Thursday in November the regular meeting of this tri-county society was held in Lexington. Both programs and attendance were good.

Hancock-Claiborne-Union.—The November meeting, held the second Monday, was addressed by Drs. J. H. Carr and P. A. Palmer. Election of officers will take place in December.

The fall meeting of the East Tennessee Medical Association was held at Lenoir City on October 17, 18. A large attendance heard a good program and enjoyed the fellowship of the meeting.

The guests of honor were Drs. Sidney Miller, of Baltimore, and Perry Bromberg, Nashville.

Dr. W. M. Hardy, assistant secretary of the State Association, was in attendance and discussed state organization with the officers of the East Tennessee counties.

The following officers were elected:

President, Dr. G. Victor Williams, Chattanooga; vice-president for upper East Tennessee, Dr. J. R. Coolidge, Greeneville; vice-

president for lower East Tennessee, Dr. W. B. Campbell, Cleveland; secretary-treasurer, Dr. Jesse Hill, Knoxville.

The spring meeting will be held at Kingsport. The fall meeting of 1930 will be held at Cleveland.

The fourteenth annual clinical session of the American College of Physicians will be held at Minneapolis, Minn., February 10-14, 1930. Headquarters, Minneapolis Municipal Auditorium. Hotels, Curtis, Leamington, Radisson, Sheridan and others.

The members of the Association are most cordially invited to attend the next annual meeting of the Southern Medical Association, which will be held in Miami, November 19th to 22nd. The scientific program, with its twenty sections, will insure a most diversified and interesting meeting. The clinics to be presented by the Dade County Medical Society will afford an excellent demonstration of the practical phases of medicine and surgery.

The eighth annual meeting of the Walnut Log Medical Society was held October 15th, 16th. In addition to some of the best men in the state, Drs. Elsworth Smith, Drew Luten and Samuel R. Grant, of St. Louis, and Dr. Emmett F. Horine, of Louisville, appeared on the program.

The officers for next year are as follows:

Dr. J. D. Brewer, Dyersburg, president; Dr. J. B. Hahan, Moscow, Ky., vice-president; Dr. Ira Parks, Union City, secretary-treasurer.

MIDDLE TENNESSEE MEDICAL ASSOCIATION

As this JOURNAL is being published the Middle Tennessee Medical Association is meeting in Lebanon. The program is well prepared and contains sixteen addresses, in addition to the presidential address by Dr. M. B. Garner. A night session is planned, at which time the visiting doctors will be entertained at a banquet given by the Wilson County Society. We feel sure that those who were fortunate to attend are being well paid by the able papers and Southern hospitality.

ABSTRACTS OF CURRENT LITERATURE

ANESTHESIA

By Hugh Barr, M.D.

Medical Arts Bldg., Nashville

Factors Contributing to Failure in Regional Anesthesia. R. B. McKnight, M.D., Charlotte, N. C. **Current Researches Anesthesia and Analgesia, July-August, 1929.**

The author submits a table that shows about 87% satisfactory results and about 13% unsatisfactory results. Of this number about 5% were complete failures. Unsatisfactory anesthesia included, undue nervousness, incomplete insensibility to pain, untoward reactions caused by one or more of the agents injected, poor relaxation.

He advises proper preanesthetic medication as morphine, scopolamin or other narcotics. A successful local anesthetic must have stability, solubility, ability to withstand sterilization, and relatively non-irritating qualities, "The action of a local anesthetic after injection consists in the liberation of the base from its acid salt by the tissue fluids and it is in the form of the free base that it is soluble and exerts its physiologic action."

Novocain is least toxic. Failures are due to lack of knowledge of surface and regional anatomy and location of nerve trunks. Improper selection of cases, bad technique, bad surgical technique, too much haste as regional anesthesia should be given deliberately and unhurried. The operator should be gentle and the operating room quiet.

CLINICAL PATHOLOGY

By R. H. Monger, M.D.

Medical Building, Knoxville

Pathologic Anatomy in Addison's Disease—Archives of Pathology, Sept., 1929. N. W. Barker.

The author studied 28 cases of Addison's disease post mortem. Among these there was bilateral tuberculosis of the suprarenal glands in twenty-five; acid fast bacilli were found in eleven. There was advanced bilateral suprarenal atrophy in three cases. In all the cases but one some suprarenal tissue remained; the maximal amount remaining in any case was approximately 10 per cent of the normal. Healed tuberculous lesions of the lungs were found in all the cases in which there was tuberculosis of the suprarenal glands. Actual tuberculosis of other organs were found in twenty-two of these. The weight of the heart was less than the average normal in fourteen of twenty cases in which data on the weight of the heart were available. Diffuse degenerative

changes in the renal tubules were present in nine cases. In ten cases, including the three cases of suprarenal atrophy, the thymus was enlarged and there was hyperplasia of lymphoid tissue in the nodes and intestinal tract.

Simple Method for Staining Spirochetes—Jour. Lab. & Clin. Med., Sept., 1929. E. Weiss.

The author describes a new method for staining spirochetes. The material supposedly containing spirochetes is placed on a slide in a drop of five per cent glacial acetic acid. The slide is inverted over a hollow ground slide and placed in the incubator for fifteen minutes. The drop is then spread and allowed to dry in the air. The slide is covered with the mordant and steamed for from two to five minutes. The slide is then washed with warm water and covered with a saturated solution of one of the recommended basic dyes for from two to five minutes; the slide is then washed with water and dried in the air. If a contrastive staining is desired the slide is then covered with a 10 per cent solution of contrasting acid dye in 30 per cent alcohol for from eight to ten minutes, washed with water and dried.

The Uric Acid Increase in the Blood of Patients with Cardiac Compensation—Jour. Lab. & Clin. Med., Oct., 1929. J. Lisle Williams.

The author made a study on patients in varying stages of cardiac decompensation but without nephritis as determined by careful clinical study, functional tests, frequent and repeated examinations of the urine and in several instances post-mortem examination. Over a period of six years 22 patients were studied. There were 14 males and eight females. The clinical diagnosis was chronic myocarditis with eight patients, six of whom had hypertension. The blood uric acid varied from 3.0 to 9.8 in the maximum range of all patients and all determinations but the averages for these patients ranged from 3.6 to 6.9 mg with a grand average of 4.75 mg per 100cc of blood. The following conclusions were made as a result of the study:

1. Cardiac decompensation without nephritis is associated with a marked increase in the concentration of blood uric acid and a moderate increase in urea and nonprotein nitrogen.

2. There is a marked decrease in the concentration of uric acid and a moderate decrease in urea and nonprotein nitrogen of the blood following improvement in cardiac efficiency.

3. This decrease is accompanied by a diminution in the size of the liver and by an improvement in odema.

4. The results cited here support the hypothesis that the liver is an important organ in uric acid metabolism.

5. The determination of the blood uric acid to-

gether with the other nonprotein nitrogen extractions of the blood is of diagnostic value only when combined with careful clinical study and repeated urinalysis.

DERMATOLOGY

By E. E. Brown, M.D.

Doctors Building, Nashville

Treatment of Acne Vulgaris. The Urologic and Cutaneous Review, October, 1929.

In the local treatment of acne vulgaris, C. J. Broeman advises (The Journal of Medicine, August, 1929) the use of mild soaps, avoiding any medicated soap, especially those containing tar or sulphur as these medicated soaps may, when combined with the lotion or ointment prescribed, form precipitates harmful to the skin. Frequent use of tincture of green soap is advised by some, as it acts as a peeling agent, and this is the purpose of most ointments and lotions in the treatment of acne. In some cases, greasy agents are not well borne by the patient, and a lotion will have to be substituted. Resorcin in alcoholic solution in strengths of from two to ten per cent, sulphur ointment, with or without salicylic acids, Lasar's paste, etc., all have been advised. The above treatment has been followed for years, but until the advent of the X-ray, the results were indifferent and not at all satisfactory. The local treatment, besides the use of ointment or lotion at home, consists of carefully opening postules and subcutaneous abscesses with a very fine bladed knife, and squeezing out the comedones at each visit to the physician's office. Drainage of postules is maintained by bathing the face in a hot alkaline solution, as magnesium sulphate. Patients should not be permitted to open postules or remove comedones.

Dandruff pityriasis quite often accompanies acne and should receive proper attention from the beginning. The scalp may be covered with fine, dry oily pityriasis. For the dry scaly condition, an ointment containing salicylic acid, sulphur, or ammoniated mercury is usually advised. While for the oily condition, lotions containing tincture of cantharides and tincture of capsicum in alcohol are of more benefit.

Broeman holds that radiotherapy properly applied constitutes the most valuable remedy we possess in the treatment of this disease. The rationale of X-ray treatments for acne depends upon the fact that the X-ray exposures reduce the functional activity of the sebaceous glands and in consequence reduce the size of the follicles, the pores become smaller and the texture of the skin much improved. The usual way of treating acne is to give unfiltered broken doses, one-fourth erythema skin unit at intervals of once a week. The patient's face should be carefully examined each time before being treated with

X-ray, because some skins are highly susceptible to X-ray. Blondes are more susceptible to the X-ray than are brunettes, as are thin-skinned individuals. The development of pigmented spots or freckles in blondes is a sign to "go slow" with the X-ray. These small black pigmented areas, as well as freckles, usually disappear within a month or six weeks after discontinuing the X-ray. It is advisable after ten exposures at weekly intervals to one area, one-fourth skin unit having been used, to be more careful and in some cases to discontinue using the X-ray. As high as fifteen and even twenty X-ray treatments as described above, have been given to one area without any damage to the skin; however, after fifteen rays it is better to discontinue the exposures, for a time at least, and if they are resumed the utmost care and skill must be used. The hair and eyebrows should always be protected by leaded rubber.

GASTRO-ENTEROLOGY AND PROCTOLOGY

By Edward Guy Campbell, M.D.
1109 First Natl. Bank Bldg., Memphis

Iodoxyquinolin Sulphonic Acid in the Treatment of Amebic Dysentery. Jones and Turner. J.A.M.A., August 24, 1929.

Jones and Turner summarized as follows:

Sixty-four patients with amebiasis have been treated with iodoxyquinolin sulphonic acid, 42 gm. constituting a course of treatment. Observation has extended over a period of from one to three years.

One patient who had received one-third the proper dose did not experience any relief from dysentery.

In another patient who had dysentery with cutaneous emebiasis, the dysenteric symptoms were controlled but the cutaneous ulceration continued to show amebas after considerable treatment.

In all the remaining cases there was a prompt and satisfactory response to treatment as regards the dysentery. The response of children receiving doses in proportion to age was similar to that of adults.

Rectal ulcers healed in from seven to fourteen days.

No toxic manifestations were noted.

Stools of ten patients were examined for cysts some time after the completion of treatment and nine were negative.

Thirty-five patients, or 90 per cent of those with a satisfactory follow-up, are symptom-free from one to three years after treatment, an average of twenty months. The remaining 10 per cent (or four patients) either had a relapse with proved amebic dysentery or showed cystic amebas in the stool. Further treatment with iodoxyquinolin sulphonic acid was apparently efficacious.

INTERNAL MEDICINE

By R. B. Wood, M.D.
Medical Building, Knoxville

"Bluberry Leaf Extract Overdosage," by Shpiner, L.B., M.D., (Arch. Int. Med., 44: 204-208—Aug., 1929.)

Because of the use of myrtolmel in the treatment of mild diabetic patients, and because of Von Noorden's publication in which he found liver necrosis following intravenous use of the drug, the author tested out the drug orally in the dog, both normal and diabetic.

Given twenty times the therapeutic dose of man, on basis of body weight the author concluded the drug was nontoxic and its use was not fraught with undesirable possibilities.

"The Nervous Heart," by Eugene S. Kilgore, M.D., San Francisco, Calif., in American Heart Journal, Vol. V, No. 1.

The essential feature of the nervous heart patient is an anxiety neurosis of more or less degree, giving in addition to the cardiac symptoms, disturbances in either the afferent or efferent system those symptoms usually found in the so-called nervous patient.

As to etiology no difference is noted in sex, but larger numbers are seen about that age more prone to the emotional disturbances. The hereditary neurotic type of constitution is the important predisposing factor, but other influences, that affect general health, along with coffee, tobacco, loss of sleep, etc., play a role but in a less important one to the various psychogenic precipitants.

Timely stress is given by the author to the importance of reassurance to the patient without deceit as to what coexisting cardiac pathology may be found. Treatment is first prophylactic and second psycho-therapeutic management.

OPHTHALMOLOGY

By Robert J. Warner, M.D.
Doctors Building, Nashville

Biomicroscopy of the Tarsal Conjunctiva in Trachoma. Dr. Cuenod and Dr. Roger Nataf. Tunis. Archives of Ophthalmology, October, 1929.

Cuenod and Nataf describe a system of newly formed vessels which exists in trachoma from the very beginning as seen with the slit-lamp. The normal vascular network spread out on the tarsus gives rise, at right angles, perpendicularly to its plane, to a large number of small branches each of which spreads into a sort of bouquet on the surface of the thickened mucosa. Other visible branches contribute to the periampullar and intra-

ampullar vascularization of the granular follicles. At a later stage (periode d'etat) the most interesting point to be noted is the presence, around the granular follicles, of a fine mosaic or marquetry of extremely minute polygonal papillae. This mosaic, of a characteristic appearance and pattern is seen in every case of pure trachoma examined with the biomicroscope. Each of the polygonal plaques corresponds to one of the aforementioned bouquets of newly formed capillaries.

ORTHOPEDIC SURGERY

By Robert F. Patterson, M.D.
Acuff Building, Knoxville

Fracture of the Neck of the Femur in Children. Paul C. Colonna. Reprint *The American Journal of Surgery*, August and June, 1929.

The author calls attention to the fact that this fracture is most apt to occur in the young or the old.

The frequency of its occurrence in the very young is emphasized by the fact that he reports six cases from the Hospital for the Ruptured and Crippled in twelve months. The ones that received inadequate treatment, as in the case of old people presented Coxa Vara deformity with the greater trochanter elevated and impinging against the ilium thereby obstructing abduction.

In the treatment of these cases he advocates the Whitman abduction method. The steps in reduction are manuel traction, simultaneous abduction of limbs to the limit of normal range, internal rotation and slight flection of knee.

A cast is applied from axilla to toes in fractured limb and the cast is worn for three months. Gradual weight bearing is allowed as conditions justify.

PEDIATRICS

By John M. Lee, M.D.
Doctors Building, Nashville

Digitalis Therapy—Its Uses in Children. Phillip E. Rothman, *California and West. Med.*, March, 1929.

Because it has been used in many conditions without any rational pharmacologic basis, digitalis has fallen in disrepute with many pediatricians. Experimental evidence shows that digitalis diminishes cardiac output, and hence diminishes cardiac work. In this sense it is a cardiac sedative and not a cardiac tonic. This is one explanation of the beneficial action of the drug in heart failure associated with increased cardiac output. Digitalis is indicated only in cases of true failure of the heart muscle and not in acute circulatory failure or shock without evidence of visceral or peripheral congestion. Auricular fibril-

lation, a condition which responds most readily to the drug, rarely occurs in children. The chief indication for digitalis in children is heart failure due to acute rheumatic fever. Digitalis may be used to slow a rapid, regular, persistent heart action associated with rheumatic fever not due to fatigue, fever or excitement. The drug is ineffective when used to slow the heart rate in the acute infections accompanied by fever, in the cardiac neuroses, thyroid disturbances, acrodynia and paroxysmal tachycardia. It is never indicated in nephritis with edema, not associated with heart failure.

Children require greater amounts of the drug for digitalization than do adults, although a marked individual variation exists. There is nothing better for oral use than the powdered leaf or a tincture of high grade. The method of Jacobsen and Davison is satisfactory for digitalization.

Just when to stop the use of digitalis requires experience and judgment. The fear of producing digitalis intoxication is often responsible for discontinuing its use before the effective dose is reached. It is better to give a little too much than not enough, as the effects of a mild intoxication are nearly always transient, and readily subside with proper care. The distance, moreover, between a mild and a fatal intoxication is great. If signs of intoxication appear, the drug must be stopped until they have completely disappeared. The more severe the intoxication, the slower the elimination. The importance of constant bedside attendance and observation during digitalis therapy for children is emphasized. *Amer. Jour. Dis. Children.*

ROENTGENOLOGY

By C. M. Hamilton, M.D., and H. M. King, M.D.
Doctors Building, Nashville

The Roentgen Ray in the Diagnosis of Mucous Colitis. By Fred M. Hodges, M.D., *Richmond, Va.* November, 1929, *Radiology*.

Until recently a diagnosis depended upon the findings in the feces.

The patients frequently fail to recognize mucous casts and unless they are kept under careful observation, the correct diagnosis may be unsuspected. Organic disease of any of the abdominal viscera may be simulated. Many of them have had previous operations.

Organic pathology has not been demonstrated clinically or roentgenologically. The subject is dealt with clinically as well as radiographically.

This condition is very rare. Only eight cases have been found in one thousand examinations. All of these eight cases had clinical signs of mucous colitis. The percentage of the negative cases with clinical signs of colitis is not known.

The colonic changes are seen best at six, nine, and twenty-four hour examinations after barium meal. The barium enema may be painful and of little value. Some believe the colon just after evacuation may have the appearance of a colitis. However, this has not been the author's observation. The typical string sign of Crane has never been present.

In a true mucous colitis, a white string line is seen after the barium enema. This is especially prevalent on the left side. It varies from 1 to 4 mm in diameter. It is pathognomonic. In thin patients a rope-like structure can be palpated. In two cases, the string sign was seen several months afterward, but it was less noticeable. There was also clinical improvement.

The purpose of this paper is to get some idea of the frequency of mucous colitis and to ascertain the value of X-ray examination. Spastic colitis is diagnosed too often. A clinical diagnosis is rarely made. If the number of operations without relief of symptoms is any criterion, many cases are overlooked.

The symptoms of mucous colitis may simulate disease of the appendix or gall bladder. All of the author's cases had been operated upon without relief. Only four of the eight cases had been diagnosed as mucous colitis prior to X-ray examination.

Conclusion

1. Found in only one per cent of examinations.
2. Frequently simulates other abdominal diseases.
3. The string sign is pathognomonic. Its absence does not exclude the condition.
4. The appearance of colon after evacuation does not simulate this disease.
5. The radiologist is justified in making a diagnosis from string sign alone. However, he should not overlook other pathology that might be present also.

SURGERY — GENERAL AND ABDOMINAL

By John L. Dies, M.D.

1213 Exchange Building, Memphis

Surgery, Gynecology and Obstetrics. Volume XLIX. October, 1929. No. 4. Pgs. 538-539. G. W. Crile, M.D., F.A.C.S., Cleveland, Ohio. The Prevention of Abductor Paralysis in Thyroidectomy.

Unilateral abductor paralysis is unfortunate; bilateral abductor paralysis is a tragedy. It is a scant comfort to the surgeon, and certainly no comfort to the patient, to have the paralysis appear several days after the operation, or after the patient leaves the hospital. Frazier, Sir Charles Ballance, and others have made contributions to the subject of nerve anastomosis, but

there is still much to be done in this field. Massage, electrical treatments, local applications, yield meager net results. Prevention is the ideal treatment.

The prevention of abductor paralysis has little to do with a knowledge of anatomical landmarks, every student of surgery knows where those nerves are. The surgeon experienced in thyroidectomy reviews the position of the recurrent nerve as an evil memory. It is not its anatomical location, however, the neighborhood changes of fixation and adhesions, and certain characteristics of the nerve conduction, which form the hazards.

Vulnerable structure of the recurrent nerve. The slightest direct, or even indirect, pressure on the recurrent nerve interferes with nerve conduction and immediately changes the voice. By contrast, the peripheral nerve fibers can undergo much trauma without resultant motor or sensory disturbance, but the naked recurrent nerve is almost as sensitive as is the naked brain or the spinal cord. Struggle and survival probably have not influenced such vital organs as the larynx and trachea which have always demanded complete protection, the alternative being death. Whatever the cause, these nerves are exceedingly sensitive, exceedingly delicate, and the current through them is easily blocked.

In their vulnerability the recurrent nerves must be classed with the brain, the spinal cord, the optic, the auditory, and the splanchnic nerves: the exceeding vulnerability of the recurrent nerves is, therefore, the first and the most important factor in the production of abductor paralysis.

Neighborhood changes. A most important neighborhood change is the formation of adhesions between the capsule of the thyroid and neighboring structures, including the recurrent nerves. Such adhesions are frequently seen in cases of hyperthyroidism, of thyroiditis, of malignant growth, and following excessive radiation. The role which adhesions play in the production of abductor paralysis will be referred to later.

The fixed point of the nerve. The recurrent enters the box of the larynx and is attached to the abductor muscles and for this reason it has something of the vulnerability of the nerve root of the spinal nerves. The exquisite sensibility of the laryngeal mucosa is of the order of the sensibility of the cornea: the sensibility of the laryngeal nerve is comparable to that of the optic nerve. Here we have an ideal setting for trouble, a slender, highly vulnerable nerve, its normal attachment rather indifferently secured by the ramifications of cervical fascia, and when a goiter is present, by adhesions, a loose-lying, vulnerable nerve, one part attached to a goiter which is movable, and the end fixed to the larynx.

The most common direct cause of abductor paralysis is the pull on the nerve which may occur when the goiter is rolled out. The most disastrous effect is produced when the nerve is dis-

turbed by the dislodgement by the finger of an upper lobe which has thrust itself behind the larynx. Such a direct pressure and pull on the laryngeal nerve have probably caused more paralyses than either forceps or knife. Any pull on the nerve may cause partial and temporary, or complete and permanent paralysis. By this I do not mean to imply that the recurrent nerve is never injured directly by forceps or knife, by rough sponging, or by packing to control bleeding; however, abductor paralysis is probably most frequently caused by traction.

Late paralysis caused by scar formation. It is certain that if the nerve trunk is directly exposed in the course of the operation, the exposed nerve will be covered by scar tissue. Scar tissue is capable of producing a block of the action current, hence of causing a physiologic severance of the nerve, and this is as great a tragedy as direct division of the nerve, for no plastic can be done and usually conduction is not re-established.

Prevention. In order to protect the recurrent nerve, therefore, resection must be made without the use of force in rolling out or in elevation the goiter, the following technique has given us excellent results.

A—The usual skin incision.

B—A V-shaped cut upward and downward between the platysma and the skin sufficient to permit the following steps. 1. A vertical incision through the fascia, from the level of the sternum; 2. Separation of the muscles, vertically from the upper larynx to the sternum, exposing the capsule of the thyroid; 3. Division, between forceps, of the thyroid, regardless of its thickness, down to the covering of the trachea and of the larynx; 4. Divisions between slender, dependable forceps, guided by sight and touch, of the attachment of the thyroid to the larynx and trachea, a thin covering being left as a protection for the trachea and larynx.

C—This progressive division of between forceps of the goiter's laryngeal attachment is carried downward and slightly outward, until the entire lobe is sufficiently freed so that it can be raised up gently.

D—The goiter is freed from its more external attachment to the muscles, etc.

E—Although the goiter rises progressively out of the neck it still has deeper attachment, both to the larynx and to the adjoining muscles and fasciae.

F—Each point of resistance is next grasped and divided between forceps, and the entire lobe can then be rolled out of the deep recesses of the neck.

Special points. (a) If the goiter is retrolaryngeal, then, when its attachment to the larynx is completely severed, the retrolaryngeal portion slides out almost without aid and the voice is not even changed in pitch.

(b) If the goiter is substernal, the process of delivery resembles the laying of an egg.

(c) If the goiter is behind the trachea, it is easily drawn out. It matters little into what recesses the goiter has thrust itself, when its attachment to the larynx is divided it tends to extract itself because of the severing of the attachment and the release of the pressure.

(d) Since the nerves lie in the trachea-oesophageal space, the dissection is not only carried downward and outward but, until the deep capsule is reached, it is kept within the gland where there is no danger of approaching the nerve. When the deep capsule is reached, the forceps are so placed that a margin of thyroid tissue is left behind for the protection of the recurrent nerve during the operation and for another equally important reason, namely, the protection of the nerve against scar formation.

Protection of the nerve against scar formation. The posterior margin of the thyroid, that part lying between the capsule and the nerve, is "no man's land." It is not palpated; it is subjected to the least possible traction, and no division of tissue is made, so that no paralyzing scar can form during the healing of the wound.

By these precautions temporary and permanent injury of the recurrent nerve may be completely eliminated, except in the occasional case in which a technical emergency arises.

UROLOGY

By Tom R. Barry, M.D., F.A.C.S.,
and F. K. Garvey, M.D.
Medical Building, Knoxville

"Previous Treatment of Patients Who Have Developed Neurosyphilis." Francis E. Weatherby. American Journal of Syphilis. Vol. XIII, No. 3. July, 1929.

This report is based on a study of 280 cases of neurosyphilis and was made to ascertain whether or not previous treatment by arsenicals, predisposes to the development of neurosyphilis. In the series, there were 135 paretics, psychoses with cerebral syphilis 37, tabes 31, cerebrospinal syphilis 77. In the group of paretics, 81 had had no treatment, in 38 previous treatment was unknown, leaving only 16 patients who were known to have had any treatment. Of these 16, only 11 had had adequate therapy in the first stage of the disease. Of these 11 cases treated, only two could be classified as having had adequate arsphenamine therapy. The time of development of central nervous system involvement was the same in treated and untreated cases and the ages approximately were the same.

In the second group of 37 psychoses with cerebral symptoms about the same facts were true as

in paresis except the disease manifested itself much earlier in the psychosis group.

Of the 31 cases of tabes only seven had had previous treatment. The time of onset in this series was shorter in the treated cases but the incidence of tabes was higher in the untreated.

Of 77 cases of cerebrospinal lues, 15 had had previous army treatment. The time of onset in this series was much shorter in the treated than in the untreated ones, ranging from three months to 11 years. The age at onset in this group was much younger than in any other.

He also studied the effect of malaria on the incidence of neurosyphilis in six cases, with the conclusion that it had little effect on its prevention.

He concludes that previous arsenical treatment does not predispose to the development of paresis but that this disease occurs most often in neglected cases.

He thinks, however, that arsphenamine treatment does predispose to early onset of cerebrospinal syphilis.

This is an excellent article and very well worth reading.

The Role of the Prostate Gland in the Causation of Remote Focal Infective Symptoms. A Discussion of the Etiology, Pathology, Diagnosis, Treatment, and Prognosis of Such Infections.

Abstracted by C. Rutherford O'Crowley, M.D.
S. G. & O., Vol. XLIX, No. 1, July, 1929.

After discussing at length the syndrome of prostatic gland infections due to gonocci and mixed cocci, the author summarizes as follows:

1. The prostate gland is infected in at least 35 per cent of all adult males.
2. Next to the teeth and tonsils, it is the focus of infection causing the greatest number of system symptoms of toxic absorption.
3. Most infections of the prostate can be attributed to a past gonorrhea, though the gonococcus has long since disappeared from the field.
4. A surprisingly large number of men who have never had gonorrhea have infection of the prostate.
5. The association of other foci of infection, particularly in the teeth or tonsils, is far too great to be attributed to coincidence.
6. Unquestionably these latter are commonly the primary causes of prostatic infection.
7. It is often impossible to clear up the pathological condition of the prostate until these foci have been removed.
8. Though these distant foci are streptococcic, those in the prostate are frequently staphylococcic.
9. Such being the case, the question arises as to why these secondary infections should be continued by other bacteria in what in many cases is evidently a blood-borne infection.

10. Undoubtedly an explanatory factor is perverted physiology of the prostate.

11. The chronicity of prostatic infections is due largely to poor drainage of the gland follicles.

12. A cure is brought about best by gentle prostatic massage to establish drainage.

13. If the distant symptoms of toxic absorption are not greatly improved in one month of such treatment given twice a week, the prostatic infection is not their sole cause.

14. If the evidences of infection of the gland are not reduced in six weeks, the cure is being retarded by some other condition of the urogenital tract.

15. If pus is still found in the prostatic secretion after three months, the patient should be given a rest from treatment for from six to eight weeks.

16. Autogenous vaccines at times seem to aid, but they are usually quite disappointing.

17. When treatments are given at shorter intervals than three days they commonly cause an acute inflammatory reaction, and when they are given a week apart they seldom produce a cure.

18. There are certain prostatic infections in which the gland is so badly damaged that it cannot be rendered free from pus.

19. Patients with infection of the prostate gland feel best when their urine looks worst. Accordingly, prostatic massage to promote drainage is commonly indicated when their urine is clear.

T. R. B., M.D.

F. K. G., M.D.

NEUROLOGY and PSYCHIATRY

By H. J. Hayes, M.D.

899 Madison Ave., Memphis

The Relation of Endocrinopathic States to Conduct Disorders of Children. By Louis A. Lurie, M.A., M.D., Director, Psychopathic Institute of the Jewish Hospital, Cincinnati, Ohio.

Lurie summarizes as follows:

1. The endocrine glands are the dominant factors in determining structure.
2. Psychiatrista should bear in mind that the correlation between structure and function long noted by physiologists includes both mental and physiological functioning.
3. Disturbances in glandular function may lead to abnormal conduct reactions either directly or indirectly; directly, as in cretinism, where the lack of thyroid secretion is responsible for the mental retardation; indirectly, as in those cases in which as a result of physical malformation, such as midgets and giants, the individual develops abnormal mental attitudes and personality traits which make normal social adjustments very difficult if not entirely impossible.
4. The close relationship existing between en-

ocrine disturbances and delinquency, incorrigibility, sexual perversion, crime and other anti-social states has been demonstrated in a sufficient number of cases at The Psychopathic Institute of the Jewish Hospital (10 per cent in a series of 500 cases) to warrant the statement that no study of a child who presents a behavior difficulty is complete without a thorough study of the glands of internal secretion.

A Study of the Functional Psychoses in Childhood. By Jacob Kasanin, M.S., M.D., Research Associate, Special Research, Boston Psychopathic Hospital, and Moses Ralph Kaufman, M.D., Commonwealth Fund Research Fellow in Psychiatry, Harvard Medical School, Boston, Mass.

Kasanin and Kaufman summarize as follows:

The study of the functional psychoses in childhood was undertaken in the hope that a clearer idea would be obtained of the various factors which enter into the development of a psychosis.

Psychoses in children are relatively rare. There were only 160 children under the age of 16 of a total number of about six thousand patients who were admitted to the Boston Psychopathic Hospital in the years of 1923, 1924, 1925. Only 65 children were found to be psychotic. Twenty-one of these were diagnosed as dementia praecox and four as manic-depressive insanity. These two groups were studied and re-classified.

The children diagnosed as manic-depressive psychoses did not necessitate any change in diagnoses. The 21 cases diagnosed as dementia praecox were grouped as follows: six cases were felt to be typical cases of schizophrenia; five had re-

active psychoses; two as "prophebephrenie"; two cases showed evidences of a toxic psychosis; two cases were essentially atypical or psychopathic personalities and one case remained undifferentiated.

The outcome of the children was as follows: Two children died, seven are still patients in state hospital, and 16 are back in the community. The toxic and the typical schizophrenic cases are the most ominous. All our toxic cases died. Of the six typical schizophrenic cases and the two cases of "prophebephrenie" only three cases were able to go back to the community.

The attempt at re-classification was not altogether satisfactory because the various groups were not mutually exclusive.

The physical factors including menstruation were of significance only in a few cases. Heredity was definitely poor in our clear-cut cases of schizophrenia and the affective disorders. Poor heredity was also present in some of the other cases.

No definite statement can be made in reference to the parent-child relationship because so many of our cases had rather unusual family situations beginning from early infancy.

Sex with its various problems played a very important role in most of our cases.

Environment stress in its various forms seems to be of definite etiology significance.

The content of the psychoses gives only very limited knowledge of the pre-psychotic problems of our children, except in a few cases.

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ESSENTIAL HYPERTENSION*

O. N. BRYAN, M.D., F.A.C.S., Nashville

THIS condition is spoken of as benign hypertension, hypertensive heart disease, hypertensive cardiovascular disease, chronic vascular hypertension, Allbutt's hyperpiesis and primary hypertension. It is a condition in which the outstanding feature is an elevation of the blood pressure, which is persistent in character and in which we know practically nothing as to the cause. Reid says there are three types that may be recognized as follows: the first being the "chronic vascular hypertension," the second, "chronic hypertension with diabetes" and differs practically none from the former except for the sugar metabolism, the third form being "chronic hypertension with nephritis." In recognizing such cases we have made the great achievement, that every case which presents itself with chronic hypertension together with or without a trace of albumin in the urine, is not a case of Bright's disease. By recognizing such cases we are able to give a better prognosis and the therapy is quite different from those with Bright's disease. In this condition we are not dealing with Bright's disease nor are we dealing with primary arteriosclerosis. There was a time in which hypertension was looked upon as a result, rather than the cause, of albuminuria and Bright's disease. Another confusing fact was that many cases of hyper-

tension without albuminuria did not have arteriosclerosis. In fact the most pronounced cases of arteriosclerosis, in the senile, did not necessarily have a marked elevation of the pressure. Meara divides the chronic hypertensive cases into two classes (barring the thyroid cases). "One group is ascribed to true clinical nephritis or Bright's disease; the other, which constitutes the majority, is due to certain unknown causes, whose earliest operation is manifested as hyperpiesis, to which elevation of pressure, other pathological states or functions is in the main attributable."

What results must we expect from a continued hypertension? The first result will be on the left ventricle of the heart in the form of hypertrophy without degeneration or dilatation. The heart may be able to withstand this additional strain for many years, while on the other hand, some cases may not be able to withstand additional strains or efforts. Secondly, the arteries undergo sclerosis as a result of the constant strain they are under or the toxic agents which they are subject to, one or both. As in the senile type this is a patchy sclerosis and therefore our symptomatology will depend on the location of the pathology. A sclerosis in certain areas, as the spleen, the skin and splanchnic may produce practically no symptoms, on the other hand, sclerosis in the heart (coronaries), cerebral and renal vessels will cause certain symptoms and signs. In case of the coronary vessels be-

*Read before the Tennessee State Medical Association, Jackson, April 10, 1929.

ing sclerosed we begin to get a degeneration in the heart muscle, as a result of the faulty circulation, and then follows the beginning dilatation or beginning decompensation.

One is impressed on taking the family history of such cases with the number in the family that have died of apoplexy, angina pectoris, heart failure and kidney disease, all being sequellae to chronic hypertension, which makes it look as if certain family groups have a susceptibility to chronic hypertension. The type of the individual is the short, heavy set type and is especially prone to occur in the energetic, dominating individuals. For this reason it is found in the higher classes, however, it is not impossible to find essential hypertension in the laborer, but is less common in the laborer. Overeating, mental strain and worry seem to be big contributing factors of the etiology. Endocrine disturbances are mentioned as causes and hypertension is often found in cases of hyperthyroidism. Hopkins believes there is a distinct type of hypertension occurring at the menopause. We are all anxious to search for foci of infection in such cases and have them removed, if possible. Meara says that primary hypertension is not the product of an infectious process; nor is syphilis the direct cause of high blood pressure, in spite of the fact that its attack on the vascular system is so common and so severe. Hypertensives may have syphilis, which should be treated and hypertensives may have foci of infection which should be removed, because of the damage these conditions will do to the same organs affected by hypertension, namely: brain, heart and kidney. The eating of excessive protein has been accused of being an etiological factor in these cases, however, in recent years it has been disputed. Strouse and Kelman report, that in patients affected by arterial hypertension, no increase in the non-protein nitrogen and urea nitrogen of the blood was found to follow protein feeding up to 150 grams daily. In cases of frank progressive nephritis with hypertension, a diminution of protein intake, sufficiently great to reduce the figures for blood non-protein nitrogen and urea,

did not cause lowering of the blood pressure. Allen has held that sodium chloride is a factor in causing hypertension, though not the primary cause. Mosenthal and Stone state, "There is no definite evidence in the literature that sodium chloride raises blood pressure. In a series of experimental observations the ingestion of ten gms. of salt failed to raise the blood pressure in cases of hypertension. Major and his co-worker, Stephenson, have accumulated considerable evidence that guanidin bases, protein bodies and products of metabolism may be a direct cause of hypertension. Reid says, "Hypertension is dependent upon an altered physiology of the nervous mechanisms influencing the level of blood pressure. To be more specific, it may be stated that arterial hypertension is due either to the increased stimuli from the sympathetic nervous system or a lessening of the inhibitory influence of the vagus nerve or both." We have no way of telling what per cent of the people are hypertensives. The ones we meet are usually those that have been refused life insurance or cases we find during a routine physical examination. It is indirectly responsible for the death of many individuals, while on the other hand, there are many that lead a useful life for many years with hypertension. Many of these cases die of diseases entirely irrelevant to their circulatory pathology. In some of these cases nature is able to make adjustments and compensations that will meet the demand, and thereby allows such cases to live their allotted time without symptoms or signs except for the hypertension. These cases are entitled to and should have a complete physical examination, observation and laboratory workout in order that we may acquaint ourselves with the life and habits and everything else about this case. We must not dismiss this case by telling him he has hypertension and leaving him to believe he is doomed to an early death from the effects of hypertension. We should explain to such cases that this is a compensatory process and that after a thorough analysis of his case we are prepared to inform him that none of

the danger signs are present. We have means of telling when the involvement is taking place or embarrassing the heart, kidneys and brain and then give out some of our warnings. This patient should not give up his work because of the hypertension when many years of usefulness may be ahead. On the other hand, if he quits work he will spend the balance of his life in misery and often will make the lives of others miserable by his many complaints.

When we think of these cases from the standpoint of treatment, then we find there are two kinds, first those who have some symptoms and, second, those without symptoms. Sir Clifford Allbutt says, "If we can catch hyperpiesis early and keep at work against it, it can be cured more often than not," and further adds, "when the system has taken a new set, the whole has readjusted to the altered conditions, and the new attitude is more or less permanent. Therefore, to bring back the old equilibrium of pressures by active treatment is out of the question and diligently to attempt it is to do more harm than good." It is a debated question the effects of alcohol, tobacco, coffee and tea have on blood pressure. If they are used to excess, then it would probably be wise to restrict their use.

When we look for signs and symptoms of early hypertension we find practically none except the hypertension. When signs and symptoms begin to manifest themselves, we will find, on analyzing the case, that they are secondary as a result of the hypertension and its effect on certain organs as the brain, kidney and heart. A pressure that is 160 mm is spoken of as hypertension. The pressure in essential hypertension may range from 160 mm to 300 mm. The relation of the systolic and diastolic pressures depends to a large extent on the functional efficiency of the heart muscle and on the condition of the arteries. The diastolic pressure rises commensurately with the systolic pressure. When we begin to get some of the degenerative conditions in the heart muscle and in the arteries in the form of arteriosclerosis, then there will be variations in

the relationship of the systolic and diastolic pressures. The blood pressure in hypertensive cases has a marked tendency to fluctuate from time to time, as much as fifty millimeters in one-half hour's time. Any great tension or nervous excitement is prone to raise the pressure materially.

The cause of death in hypertensive heart disease is found in the ultimate effect it has on the brain, heart and kidneys. In Jane-way's series of 178 cases in which the cause of death was known, 152 died of cardiac failure, severe cardiac pain, uremia or apoplexy; accidental causes and complicating acute infectious diseases made up the majority of the remainder. It is impossible to give a prognosis from hypertension alone, and the height of the pressure seems to be a minor factor in the prognosis of the case. The response of the heart and the blood vessels seem to be the chief determining factor in the prognosis. Many cases are seen in which the pressure has been over 200 for ten to fifteen years. On the other hand, some cases do not stand the strain so well and within a very few years after its onset, the cerebral accidents, heart failure, or arteriosclerotic kidneys may be the cause of death soon after the development of trivial symptoms. Our prognosis, therefore, will depend on the condition of the heart, brain and kidneys and these are the organs that should have frequent observations. More attention should be given the condition of these organs and less attention to the number of millimeters of pressure the patient has. The prognosis of women is somewhat better than men, probably because they can keep quieter and do not have so many demands upon the cardio-vascular system.

Treatment. Reid says, "Granting that it may not be possible to state just what caused the heightened blood pressure in an individual case, it seems reasonable to lessen those factors which the study of physiology has shown cause a rise in the blood pressure level." If we are to treat and benefit these cases when it means a more or less change of their mode of living. Our greatest good will come from rest, diet and removal of nervous strain. In order

to get the maximum benefit from rest it would be best for the patient to rest in the bed for two or three weeks, however, this cannot be accomplished in but few cases. A period of rest is no doubt beneficial, but so soon as the individual resumes his duties, the chances are the blood pressure will return to the former reading. We can insist on these patients taking more rest at night and having one or two rest periods of one-half to one hour each day. Under treatment, McElroy makes the following statement: "In the management of benign hypertension it is well to realize what may be accomplished in the way of treatment—that the early cases may be cured, the more advanced arrested and many of the severe symptoms in the late stages palliated. These results may be accomplished by; the judicious application of psychotherapy; regulation of the diet; sane advice as to work, rest, exercise and vacation; the careful use of hydro-, mechanico, and electrotherapy; the proper use of drugs; control of infections and the application of certain surgical procedures." In order to give these cases the benefit of your advice, as to the regulation of their mode of living, it will be necessary to go into many details about their work, rest, exercise and vacations. They are in the habit of overworking and that under strain; they do not get the proper amount of rest; they do not take but little exercise and very rarely take a vacation. All of these details must be entered into and we may accomplish much by so doing. They should restrict their work, eating and nervous strain. So long as there is no impairment in the function of the kidneys then there is no particular need for restriction of the proteins, however, they should be cautioned about eating too much of a one-sided diet, either too much carbohydrates or too much proteins. They should avoid excesses in the form of coffee, tea, alcohol and tobacco because of the stimulating effects they produce. If the patient is diabetic, then the diet must be adjusted accordingly. If the patient is not diabetic or nephritic then the best advice is to always restrict excess rather than fol-

low any rigid dietetic regime. In cases with obesity the rigid dietetic regime necessary for obesity will often cause a marked reduction of the hypertension. The general opinion now is there is no particular reason for restricting the proteins in these cases unless the blood chemistry shows a retention of protein products. It is best to restrict the fluid intake of these cases to about 1500 cc per day.

Constipation no doubt plays a part in certain cases and should be treated as near as possible by diet, exercise, habits, enemata if needed and the use of mineral oil. It is very evident that an occasional dose of calomel, salts or castor oil is beneficial to these cases. We advise these patients against going on high tension, but it is entirely a different problem to get them to do it. In order to do so they will usually have to correct entirely their faulty philosophy of life. They do not know how to play and as a consequence they do not know anything about out-door exercises, recreations or vacations. They will have to be convinced that good results in hypertension means fewer hours at their vocation and more hours on vacation and recreation. By curtailing his activities in outside affairs it will be found he will be able to carry on his work with more ease and have plenty of time left for the out-door recreation.

In cases with high basal metabolic rate it is best to direct attention to the thyroid. In cases occurring about the menopause it is well to try corpus luteum or extract of the whole ovary. Venesection is recommended in those intractable cases with a very high tension. Possibly the greatest benefit from drugs will be had from the mild sedatives and hypnotics. Often by the use of small doses of luminal (one-fourth to one-half grain tablets three times daily) or theominal, a combination of theobromine and luminal, good results will be noted. Nitrites, nitroglycerine, erythrol tetranitrate, iodides and benzyl benzoate are of little advantage except in the more advanced states of degeneration, heart (angina pectoris), brain and kidney. I have not attempted to deal with these secondary

manifestations of hypertension. Some favorable reports have been given from the use of liver extract. Potassium sulphocyanate is used and has some enthusiastic supporters. It is given one and one-half grains in watery solution after each meal. Three times daily for the first week; twice daily for the second week and once daily for the third week and after this, once daily or every other day. In some cases the full effect does not seem to take effect until three or four weeks. Gager reports his experience with potassium sulphocyanate in thirty-five cases. There were only three who proved entirely resistant. In twenty of the group of twenty-five patients who were under observation for several months there was a fall in blood pressure of from twenty to sixty mm. Hg. It is my belief that if we rely on drug treatment in these cases we will be defeated.

DISCUSSION

DR. J. P. KELLER, Nashville: I know of no question that is more momentous to the profession, as a whole, than the question of Vascular Hypertension. Dr. Bryan has given us a splendid paper and he has mentioned everything that is known at the present time in regard to the etiology and the treatment of this condition. However, I have in mind (it may be a hobby, those who know me think that I have an endocrine hobby) but I have in mind that this condition, when we have eliminated all of the usual factors that provoke this condition, such as focal infections, constipation, etc., bearing in mind that pressure is raised by stimulation of the nerve endings of the vasoconstrictors and that in the body itself and in certain glands of the body there are substances elaborated, which cause a constant tonic influence on these small arteries. It is my opinion that this is true.

Reasoning from the opposite, I have under treatment at the present time and have had for the past few years, cases of hypertension, not in the run-down, under-fed and over-worked class but in robust people, a condition of hypertension in which I considered that there was a lack of these essential elements that caused the contraction or, if you please, the constriction of the arteries. I have gotten good results by the administration of gland extracts. Sometimes two or three, sometimes one predominating but usually the three that I employ mostly are pituitary, thyroid and suprarenal. Reasoning to the opposite, it seems to me that we might conclude, when we are not able to explain this condition

otherwise, that we have an overflowing of this particular substance, which we lacked in the former condition. And I believe this is true. We are not able to do them any good.

Dr. Bryan gave us the usual treatment that is carried out in these cases. I agree with them most thoroughly. Not all of the patient's activities should be stopped but he should give up some of them and lead, as Dr. Bryan said, a physiological life, as nearly as possible. At the time he should be told that hypertension is not incompatible with longevity. I have just lost an old man ninety-three, whose blood pressure since I have been seeing him for the past two years, ranged around two hundred and more. With the properly regulated life hypertension is not incompatible with longevity. I get the best results by putting them at rest, trying to reassure them and diet them, or rather lack of diet. Nearly everyone of these individuals eats too much. I do not think, as Dr. Bryan said, it makes much difference what they eat so long as it is digestible and balanced, but not too much. I generally put them to bed for awhile on four glasses of buttermilk a day. The pressure of one individual, that I have been seeing for the past three days, was from 240 to 260 yesterday. I have him on buttermilk, light salads, fruit and a few crackers. You have to put them to bed occasionally, usually for four or six weeks. I have tried all of the drugs that have been recommended from all of the different mineral salts to the extract of garlic. I do not think they do any good. I get just as good results by putting them to bed with buttermilk diet.

I appreciate the paper and enjoyed it very much.

DR. I. G. DUNCAN, Memphis: There's an old saying that, fools rush in where angels fear to tread certainly applies here as I am a G. U. Specialist and shouldn't be saying anything about hypertension. However, I am going to give you a few specific instances that came under my observation which perhaps will throw a little light upon the subject.

No. 1. Several years ago, an old man came in with a large prostate, who had been to one of the clinics of the city and diagnosis made of hypertension. He was put on a diet with little improvement. I examined him and I found his blood pressure 200-120. He also had about a quart of residual urine, the analysis of which was about normal.

We put him to bed, reduced his residual urine, and in about a week, his blood pressure was down to 150. We took his gland out and he hasn't had any more trouble, his blood pressure has been down to 140 ever since.

No. 2. A lady came to see me who had been treated by a very prominent internist for hypertension. Her chief complaint was dizziness, shortness of breath, indefinite abdominal pain and nocturia. Urinalysis practically negative, blood

pressure 190-150. Cystoscopic examination showed a stricture of urethra and strictures of both ureters with a hydronephrosis of 40 cc in right kidney pelvis. After stricture of urethra and ureters were thoroughly dilated, her blood pressure dropped to 150, although she was on no diet whatsoever. During the past few years she has had several attacks of high blood pressure but they have always been relieved by completely dilating strictures of ureters.

No. 3. About a year ago a man whose prostate I had removed some time previously consulted me. He had been treated for hypertension for some months without much benefit. His blood pressure was 210-160. His urine was full of pus. I cystoscoped him and found a stricture of both ureters. After a thorough dilation of each ureter his blood pressure dropped to 160 and he felt fine. He has had several rises of blood pressure since, but has always been relieved by the dilation of his ureters.

I could enumerate one or two dozen more cases. They came to me because they were sick, felt bad and wanted something done. I was treating not the blood pressure, but the condition I found. It seems that hypertension is the result of some retention of urine in the G. U. tract, not Bright's Disease, due to some mechanical obstruction in the bladder, kidney, etc., and I think if we were to go into it from this angle, maybe we would be able to help a few more of these unfortunate people.

DR. A. A. OLIVER, Paris: I just want to ask Dr. Bryan what we should tell our patients when we can not help them. Are we justified in telling a little white lie and will the other physicians stand behind us?

DR. BRYAN, (closing): I appreciate the discussion that has taken place on this paper. Dr. Keller entered rather more fully into the internal secretion than I did, which may have some bearing on it. Theoretically speaking, it looks plausible.

Dr. Duncan, remember in the paper, I laid stress on the treatment of these cases and if we find anything we feel has any particular bearing

on this case, then I should think it should be correct. Stricture of the ureter or some disturbance in the urinary tract, that we feel can be corrected, if that is having any effect on this, then we will probably benefit as shown in his case.

If it is an enlarged prostate and one that should be removed, certainly I feel the internist should have recognized that and said something to his patient about it.

Now then, the point that Doctor Oliver has made is one that worries all of us. I said in the paper if we paid more attention to the heart, brain, kidney and less attention on this instrument, the patient would be much better off in the long run.

If you tell him his blood pressure is 200, the next question is, "What is normal for a man fifty years old?" Therefore, he is going to figure normal 135 and he is sixty-five. Sixty-five seems like a whole lot to him.

I, personally, feel that the fewer times we can take the blood pressure of these cases the better off the cases will be. I think probably once a month is all right, but taking his pressure every day, I think, is wrong.

I have a patient now who went to another physician a few years ago, swears to me that that Doctor came to see him every day and that was all he did, took the blood pressure, talked a few minutes and went out. What did he gain from that? Nothing.

Now, when it gets to this danger stage, if you watch the heart, kidneys, brain condition, then you can give out certain warnings; before that, I don't think they should be scaring the patient, telling him a lot of tales about his blood pressure. This patient may be getting along all right with a blood pressure of 200, over a period of years, and I can't see that they are much worse off now than they were then.

I don't believe myself in scaring the patients, could give them the warnings, put them in detail as the course you want them to pursue, but if you see great danger ahead for this patient, I even then would not say much to the patient, but I would say something to his relatives or family about it.

FRACTURE OF CAPITELLUM*

ROBERT F. PATTERSON, M.D., Knoxville

ISOLATED fracture of the capitellum embracing only the articular surface is of sufficient rarity to justify the report of another case.

Miss L: About twenty-five years of age. Fell September the eighth, 1929, landing on her outstretched left hand. She felt a keen



Fracture capitellum before removal.

pain at the time in the elbow which became locked at about 135 degrees extension. Great swelling supervened. X-ray September the seventh showed fracture of the capitellum

with the detached fragment in the anterior portion of the joint. It was apparently blocking flexion.

The patient was seen by the author September the tenth and operation was advised but had to be postponed until September the sixteenth on account of raw surfaces on her skin due to liniment and baking.

On the above date the joint was exposed by an external lateral incision about five inches long by entering between the extensor carpi radialis longus and brevis in front and the extensor carpi ulnaris behind.

The fragment was completely detached, lying within the joint and in front. The epicondyle was intact. After removal of the fragment and closure of the wounds the arm was partially immobilized with a starch bandage at right angles for one week. The bandage was then removed and physiotherapy begun.

One month later she could flex arm to about forty degrees and extend it to about 140 degrees. It is painless within these limits.

The peculiar thing about the case was the comparative absence of discomfort both before and after operation. I attribute this largely to the fact that contact between the humerus and the head of the radius was removed.

*Read before the Tennessee State Medical Association, Jackson, April 9, 1929.



"SOME INFECTIONS OF THE THROAT"*

W. G. KENNON, M.D., Nashville

IN 1922 there were reported by Schultz six cases of a disease which was characterized by an acute infection of the mouth and throat. A low leukocyte count with marked reduction, or absence of the polymorphonuclear cells. High fever, great prostration and a rapidly fatal termination.

In his original article he stated that the disease was confined to middle aged members of the female sex. Schultz and Jacobwitz made a further report based on ten of their own cases and thirteen from the literature, and modify the first report, in that the disease is not exclusively found in females, and that there is normal erythrocyte production and no thrombopenia. The tonsils and pharynx were acutely inflamed, and became ulcerated and covered with a grayish exudate. There was some enlargement of the cervical lymph nodes. The liver and spleen were enlarged in three of the six patients first reported. All were jaundiced, but there were no hemorrhagic spots.

In 1927 Hastlin carefully reviewed the literature. He found forty-three cases reported and added two of his own. Of the forty-five cases thirty-five were females. There were forty-two deaths. Autopsies in thirty-six cases. No characteristic changes were found, save in the bone marrow, which was found to be poor in, or entirely lacking, granulocytic cells. Ulcerations occur in other parts of the body, but were always present in the mouth.

They might appear anywhere in the gastro-intestinal tract and have been found on the cervix uleri, in the vagina and on the symphysis, hip and conjunctiva. The blood picture characteristically showed a reduction in the number of white cells and the granular cells were disproportionately lowered in number and often were entirely absent. The loss of white cells was in the

fatal cases progressive from day to day, frequently falling to less than 1,000 per cubic millimeter.

Since these reports were published, several articles have appeared and more cases have been reported. When one reads these reports and analyzes the findings, he is inclined to question whether or not the condition can be recognized as a clinical entity. Is it a condition caused by an infection or is it an infection occurring in an individual whose leukocyte producing powers have already been lowered by some disease or poisoning? I shall detail for your consideration these cases from the literature.

Male, age thirty-eight. Six months before admission, patient was refused life insurance because of albuminuria. He had at that time no complaint and had felt well up until his fatal illness began. One week before admission to the hospital he had malaise, weakness, sore throat and sore gums. The symptoms soon led to prostration.

PHYSICAL EXAMINATION.

Adult, Male, Acutely ill. Marked fetor oris. Gum margins gangrenous with sharp demarcation from the more healthy tissue. Tonsils and pharynx show no ulceration, cervical lymph glands, spleen and liver were palable. Temperature 101 to 104.

LABORATORY FINDINGS.

Red blood cells 5,200,000 per c. m. Hemoglobin eighty-two per cent, white blood cells 1200 per c. m. Differential blood count polymorphonuclear leukocytes, no per cent; eosinophiles, two per cent; lymphocytes, seventy-six per cent (seventy-three per cent large); endothelial cells, ten per cent; questionable or destroyed cells, twelve per cent.

The red blood cells were normal. Urine showed albumin, few white blood cells on microscopic examination. Direct smear

*Read before the Tennessee State Medical Association, Jackson, April 9, 1929.

from mouth showed spirochetes not characteristic of the Vincent type. Culture negative for diphtheria, hemolytic streptococcus present.

CLINICAL COURSE.

The patient's condition became steadily worse with intense toxemia and coma. On the second day the white blood cells were 1100 per c. m. The following day intravenous neoarsphenamin 0.3 gm. was given. The patient, then in a terminal state, died one hour later.

Autopsy performed six hours after death showed nothing characteristic except in the bone marrow. In this, the adipose cell structure contained few blood cells. The white cell elements were made up almost entirely of lymphoid tissue and endothelial cells. No definite mitoses were demonstrable. There were no myeloblasts, myelocytes or polymorphonuclear leukocytes.

ANATOMICAL DIAGNOSIS

1. Acute gangrenous stomatitis.
2. Acute cervical lymphadenitis.
3. Acute verrucous mitral endocarditis.
4. Petechial hemorrhages pericardium pleura, stomach, small intestine and pelvis of kidney.
5. Obsolete tuberculosis of pleura.
6. Dilatation of heart.
7. Acute splenitis with enlargement.
8. Chronic interstitial nephritis.
9. Tuberculosis of kidney.
10. Chronic prostatitis.
11. Hypoplasia of bone marrow.

The regions of infection showed a peculiar lack of cellular response with no polymorphonuclear reaction.

The diagnosis in this case was agranulocytic angina.

C. C., Female, age eleven. Was brought to the clinic to be examined because of congenital syphilis in a younger member of the family. The history and examination did not suggest syphilis. She was apparently in good health, except for being underweight. Both Wassermann and Kahn reactions of the blood were positive. She was given 0.3 gm. sulph-arsphenanine or ten

mg. per kilogram of body weight. One week later the dose was increased to 0.4 gm. or fifteen mg. per kilogram of body weight. One week later a third similar dose was given. There was apparently no unfavorable reaction to any of these treatments. The fourth week the child came alone to the clinic. After receiving a treatment of 0.45 gm. of sulph-arsphenanine she said she had been in bed for the past few days and that her side hurt. The temperature was normal and she did not appear very ill. On physical examination the liver was found large and tender, there was a general glandular enlargement, and the throat showed a grayish exudate. Because it was thought that she might be suffering from arsenic poisoning she was advised to enter the hospital. On admission to the hospital on the next day the temperature was 101 F. The only additional finding of importance was a white blood count of 4,450 with marked decrease in the polymorphonuclear leukocytes. An exact differential count was not made. The first few days her temperature ranged from 101 to 102. Red blood cells 4,850,000. Hemoglobin eighty per cent, and the white blood count as previously noted. She seemed to be improving. Blood cultures and Widal test were negative. The icteric index was normal. Five days after admission the temperature suddenly went to 105 F. The throat became intensely red and painful and the mouth foul. The white count was still 4,500 but in the smear the polymorphonuclear cells had disappeared. There was prominence of the papillae all over the body, and the palms and soles were intensely red. The sort throat, high fever and skin changes caused the opinion that scarlet fever might be developing and that the low leukocyte count and absence of polymorphonuclear cells might be explained by an overwhelming infection. She was given scarlet fever antitoxin, but failed to improve. Repeated throat cultures showed only staphylococci, although by the sixth day the throat was so sore that swallowing was impossible. The eighth day the temperature was still 105 and the leukocyte

count had dropped to 2,350. A blood transfusion of 250 cc of citrated blood was given. The posterior pharynx became swollen on one side so that it was thought that the patient was developing a peritonsillar abscess. When this swelling was incised no pus was obtained. The ninth day after admission, when a white count was made only eight cells could be seen in the whole counting chamber and in a blood smear the three white cells found were lymphocytes. The platelets were diminished in number. At no time was any bleeding noted. The child died on the ninth day after admission. Ten days after the last injection of sulpharsphenanine.

At autopsy the observation were: Enlargement of the liver without any distinct pathologic changes in its structure; broncho-pneumonia with many organisms, some hemorrhage but no cellular reaction, and almost complete aplasia of the bone marrow, affecting especially the myeloblastic cells.

This diagnosis was arsenic poisoning.

CHARLES D. WILSON CASE:

Colored, female, age twenty-four, admitted October 26, 1927.

Complains chills, fever, sore throat. Past history negative, except for sore throat four years previously. In July, 1927, she had a skin rash but denied having had a chancre. First seen in out-patient department September 27, 1927, where a diagnosis of secondary syphilis was confirmed by the serum reaction.

Treatment was as follows: October 4, 0.6 gm. neoarsphenanine intravenously and 0.065 gm. of bichlorid of mercury intramuscularly, and in addition saturated solution of potassium iodide twenty drops by mouth three times daily. There was no unusual discomfort. The injections as above were repeated October 11. On the night of October 12, the patient felt chilly and had one "hard" chill, but felt quite well in the morning and returned to her work. On October 18, because of the reaction of the week previous, she was given 0.6 gm. sulpharsphenanine intramuscularly. The mercury and iodide was given as before. Im-

mediately after this treatment she felt faint. That evening she began feeling badly and became steadily worse until her admission to the hospital, and there was fever, muscular¹ aching and repeated daily chills.

Six days after her last treatment her throat became sore, starting with sharp pains which increased to the point where there was definite difficulty in swallowing. Two days after the development of sore throat she was admitted to the hospital.

Examination. Patient alert. Skin hot. Temperature 101.6. Skin showed fading syphilitic rash. Eyelids puffy, moderate general lymph node enlargement. Tonsils swollen and red, and there was a gray exudate on each. Tonsillar glands were enlarged and extremely tender, but showed no signs of suppuration. Urine examination and phenolsulphonphthalein excretions were normal. Smear from tonsil showed very few cells, none of the polymorphonuclear group, and there was no predominating organism. Throat culture showed mixed flora with hemolytic streptococci predominating. Blood cultures sterile. Wassermann reaction positive. Blood studies showed a moderate secondary anaemia. Red blood count 3,420,000 per cm. Hemoglobin seventy-five per cent. Leukocyte count 7,950 per cm. (Subsequent counts showed a leukopenia). A differential count¹ showed a complete absence of the polymorphonuclear group. The smear showed numerous platelets. The patient's course was one of uneventful recovery. Only symptomatic treatment was given. The temperature reached its highest point 103.6 on the day of admission and returned to normal after the third day in the hospital. Examination on discharge November 5, 1927, showed faded syphilitic rash, general glandular enlargement and positive Wasserman. The out-patient record indicated no further symptoms and the last blood counts have been normal.

In this case the diagnosis was arsenic poisoning with unusual blood findings.

The question as to the disease being a distinct entity is open to discussion. It has been classed with the leukaemias. Is it an

acute infection in which the toxic agent has a selective action on the leukogenic portion of the bone marrow, or is it an infection occurring in individuals whose leukocyte producing power has already been lowered by some disease condition or metallic poisoning.

Dodd and Wilkinson suggest the theory of the double benzene ring in the arsenphenanine molecule as a possible explanation for the profound leukopenia. They point out the fact that no similar case of aplasia of the bone marrow could be found following administration of arsenic compounds do not contain the benzene ring and such symptoms are not given by pharmacologists, even in rare instances from arsenic poisoning.

In all they reviewed twenty-two cases previously reported and added one of their own, a child with congenital syphilis. In nine of the fourteen fatal cases in which a complete autopsy was done aplasia of the bone marrow was noted which as far as can be determined was in no respect different from the pathologic picture found in the cases reported as agranulocytic angina.

In these cases, however, there was in twenty of the twenty-two reviewed bleeding from the gums or from the skin and mucous membrane.

Transfusion was the only therapy employed.

Feer reviewed the observation on 29,498 consecutive cases. In 186 the leukocytes numbered 3,000 or less. He concluded from these observations that a septic disease may run its course with the severest leukopenia and almost complete absence of the polymorphonuclear cells. Real differential diagnostic symptoms between a granulocytosis and septic diseases, therefore, do not exist.

The transitions are flowing. Agranulocytosis is, therefore, not an independent disease, but represents a variety of septic illness. Why a septic illness can run its course in this manner is impossible to say. Is it due to especially virulent infecting organisms, or to an inherent or acquired weakness of the bone marrow, especially the portion producing the polymorphonuclear cells. This question cannot be an-

swered. He concluded that it is not an essential, but a symptomatic disease, in other words an atypical sepsis. This symptom complex, he therefore concludes, should be called "sepsis agranulocitica," which when all is said and done adds nothing to, and subtracts nothing from our former conception of this disease, and its pathology.

In comparing and thinking over the various cases reported as a granulocytic angina, or arsenic poisoning or Benzene poisoning or death following salvarsan or even serious and unusual illnesses with sore throat and unusual blood findings, one is impressed with the numerous cases in which there is apparently only a variation in the severity of certain symptoms in many of these cases. That is the difference between a mild case of typhoid fever and a severe case of the same disease does not keep them from being the same diseases. Thus if we should happen to have purpuric hemorrhages in a patient who had all the other symptoms the disease would no longer be an agranulocytosis, but would have to be classed as entirely different thing.

It seems to me that this would be like classing a typhoid fever patient as a different disease because he developed peritonitis following a perforation of the intestine by the typhoid lucer. In addition, I feel that there is a certain caution that should be learned from this sort of case. Many of them apparently at the start look like "Vincent's angina". It is, in my opinion, too frequently the custom to treat a small Vincent's ulcer of the tonsil or pharynx by intravenous use of some one of the arsenphenanine preparations. In the ordinary case of Vincent's this is like using a shot gun to kill a fly. I will grant that it is efficacious and in the most cases not harmful, but in the exceptional case in which the individual has an idiosyncrasy to this remedy, or in which our diagnosis is erroneous the remedy has disastrous possibilities which cannot be exaggerated.

DISCUSSION

DR. W. S. THAYER: I enjoyed Dr. Kennon's paper very much. The subject has interested me greatly in the last year.

The association of this haematological picture

with a Vincent's Angina—the recognition of this syndrome—has introduced into medicine a new word to describe a picture which so far as the blood goes, has long been more or less familiar.

What does it mean exactly? We have recognized agranulocytic anaemias for years. After a grave haemorrhage, post-partum for instance, there was a profound anaemia with no tendency toward improvement; leukocytes diminished in number; nothing or little was to be found in differential counts, save lymphocytes; the polymorphonuclear granular elements nearly disappeared. Such a picture has been more or less familiar for years. When those individuals die, the bone marrow, as Dr. Kennon has said, shows no signs of activity whatever. The prognosis in such instances of aplastic anaemia is very bad. Again, of course, an agranular condition may be seen in lymphatic leukaemia or in infectious mononucleosis. The description of these instances of sepsis with leukopenia and relative lymphocytosis occurring in connection with "sore throat" has brought forward a very interesting picture, which justifies the term "agranulocytic angina" or raises the question, at least, as to whether the disease is a clinical entity. I have not had the opportunity of seeing many of these cases—as a matter of fact, only three. One of them died; one of them apparently has recovered, and the other, the third, is, so far as I know, a unique case which I expect my associate, Dr. Rutledge, will report. That is an extraordinary instance which brings up, possibly, some suggestions as to the nature of the relation between the agranulocytic sepsis and the stomatitis.

This is the case of a boy now nearly twenty-one years old. When he was less than a year old he was subjected to unaccountable attacks of fever and sore throat, with vomiting. They have come about every three weeks of his life up to the age of twenty. Sometimes he has been very ill during the period. He is the son of well-to-do parents. When I saw him a year ago his condition was extraordinarily interesting. There was extensive stomatitis and a wretched pyorrhoea; the teeth were in a very bad condition. After some study we found that about every three weeks, his blood, which showed no anaemia and a normal number of blood platelets, and leukocytes rather scanty with a relatively low percentage of polymorphonuclears—about every three weeks his leukocytes began to diminish in number, until finally a condition was reached where, on one occasion, he had a white count of only about .800, with less than two per cent of polymorphonuclear granulocytes. At the time when his polymorphonuclear reduction was at its height, he would begin to have a sharp stomatitis with the bacteriological picture of a Vincent's Angina

and fever often high. After three or four days his leukocytes would begin to rise, and sweat followed during which he was perfectly well. That has been the story since he was less than a year old.

I tried to have that boy's mouth properly attended to, but, alas, it was hard to control the patient. He is, however, somewhat better, has entered a university and I hear he has been doing fairly well. But the attacks continue.

Here is a case then of regularly repeated attacks, during which there is a rapidly developing leukopenia with agranulocytosis, and, at the height, an acute stomatitis with fever. It is hard to account for the picture. Is there some slowly and cyclically developing poison which destroys the polymorphonuclear leukocytes, and so reduces the individual's condition that he is subject to acute stomatitis? Are the leukocytes in some way inherently vulnerable and short lived, and the condition in the throat, or the lack of resistance and liability to infection of the individual, dependent on the destruction of granulocytes? Or is the condition of the blood wholly dependent on the cyclical septic condition in the mouth? The question cannot be answered at the minute.

Three weeks ago, I saw another extraordinary picture of agranulocytosis, such as I have never seen before, in a lady of seventy, with diabetes and gangrene of several toes. She is a patient of my friend, Dr. Carter, in Baltimore. Several toes had been removed; she seemed to be improving, when, in the course of a routine examination, it was found that she had about 200 leukocytes to the c.c. and practically no polymorphonuclear leukocytes.

She began to get drowsy and dull, the condition looked very serious, but there was no fever. Her foot began to get somewhat worse. For three or four days we were worried about the prognosis, but the blood then began to improve and, four days ago, presented a normal picture. She had no stomatitis. There was little anaemia. The foot was amputated and the patient remains well. (June '29.)

I feel just as does Doctor Kennon. One can hardly say as yet that agranulocytic angina is a disease entity. It certainly is a clinical syndrome which is worth studying and paying attention to. Clinical observations justify our feeling that any condition which results in the disappearance of the agranular elements of the blood is of a grave, prognostic import. (Applause.)

DR. KENNON, (closing): I don't know whether I should be most grateful to Dr. Howlett or Dr. Thayer.—Dr. Howlett for asking Dr. Thayer to discuss the paper or Dr. Thayer for discussing it.

This is a most unusual and interesting condition and it certainly deserves further study.

BACTERIOPHAGE: ANOTHER SPECIFIC THERAPEUTIC AGENT*

J. A. MCINTOSH, M.D., Memphis

EXCEPT quinine for malaria, anti-toxin for diphtheria and tetanus, and mercury and salvarsan for syphilis, there remain few specific therapeutic agents," was an oft-uttered medical aphorism of more than one dozen years ago. Specific agents are still too scarce and to have another added to the growing list is gratifying and denotes therapeutic progress.

We believe *Bacteriophage* deserves a place among the therapeutic specifics because of the certainty of its action when applied in the treatment of suppurative diseases. For instance typhoid and furunculosis when treated with the proper application of potent "phage" will cease to progress and recovery takes place. Proper application and potency of the "phage" require elucidation and are best illustrated with case reports. Therefore the purpose of this paper is to stimulate interest in and promote the use of bacteriophage.

Bacteriophage is a ferment like substance capable of dissolving living bacteria in vivo and vitro. It is easily obtainable from sewage. It has been extensively studied by D'Herelle and Twort and discovered independently by both in 1915. Even though its nature is in doubt there is enough clinical experience in its use to justify its acceptance as a valuable therapeutic agent. Dutton of Memphis has experimented extensively with streptococci "phage" and is one of the pioneers in its therapeutic application. Rice of Indianapolis has reported fifty cases of miscellaneous suppurative diseases treated with local applications of bacteriophage with good results. He has trained active "phage" against staphylococcus, same strains of streptococcus, b. typhosus, b. coli, and b. pyocyaneus.

To obtain potent "phage" we used three

hour broth cultures Ph8 of typhoid and staphylococcus aureus inoculated with filtered sewage and reincubated eight hours, filtered and reinoculated daily until complete solution of growing germs was obtained. Training the "phage" to lyse the various germs required time and some bacteriological skill. At first we were troubled with contaminants in our filters which invariably attenuated and destroyed "phage." To overcome this we double filtered the broth containing the "phage", transferred to sterile vaccine bottles and incubated 48 hours. If the broth remained clear after incubation we considered it ready for use. The therapeutic "phage" was trained against staphylococcus, b. typhosus, and b. coli and cultured on plain agar slants for 12 hours, transferred to broth tubes and incubated 3 hours at 37 degrees. The "phage" was then added in the proportion of 0.5c.c to one small loopful of organisms and incubated 8 hours. After repeating five to six times generally a sewage filtrate containing "phage" could be specifically trained to dissolve the bacillus typhosus or staphylococcus or even bacillus coli occasionally. Our experience is that bacillus typhosus is more readily soluble than staphylococcus or b. coli by sewage "phage." Improvement in concentration and preservation of "phage" after training the culture will follow continued experience in its preparation. "Phage" has been concentrated and separated from the broth proteins by rapid centrifugation by De Groat. This is advantageous because objectionable reactions occur following intravenous and subcutaneous injections of broth suspensions. However, we have had no deaths following intravenous and subcutaneous injections, but have been alarmed several times following such injections. Individuals having allergic tendencies (asthma, hayfever, urticaria, angioneurotic oedema, and spastic colon) should be given 5-10

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minims of adrenalin before receiving broth cultures of "phage" injections.

Wherever germs such as staphylococcus enter the body, "phage" is able to follow since it is much smaller. Hence one or two moist applications of "phage" to the skin surface is generally sufficient to relieve a beginning abscess or boil. Virulent staphylococci smeared on the surface of the skin are able to produce abscesses and "phage" applied to the skin surfaces so affected will stop farther progress of invasion of the germs. "Phage" applications are non-irritating and give quicker results than the ordinary remedies now in general use.

We have used "phage" locally, subcutaneously, intravenously, and intra-spinally at the St. Joseph's Hospital, and when the clinical results were poor, a check of the "phage" invariably showed a loss of potency. The following case histories illustrate methods of application.

Local Application—Miss A., white female laundry worker, aged 56, had a swollen and reddened nose. The inflammation was of one week standing and had caused intense pain and incapacity for work. The urine showed a trace of albumin, a trace of sugar, and granular casts. The nasal passages were packed and the inflamed surface covered with absorbent cotton saturated with staphylococcic bacteriophage. Within three hours the pain was lessened and disappeared completely in six hours. Twelve hours later the inflammatory zone was pointing. Twenty-four hours later a large core was removed and the inflammation had subsided and repair progressed to recovery on the fourth day. The patient is very enthusiastic over "phage."

Subcutaneous Injection—Mrs. W. G. W., white female, aged 28 years, housewife, had a boil in the left axilla of four days' duration. Twelve hours before we were called to administer bacteriophage, the boil had been incised and mercurochrome applied. After drainage the pain continued and the patient was nervous and irritable. She was reluctant when we came to treat the boil. Through a small needle 3c. c. of "phage"

was introduced into the inflamed area causing increase of the pain. We asked the patient to phone us after three hours and report on the pain. She gave us a ring and reported diminished pain. She considered herself cured within three days, but could remember vividly how much we hurt when the "phage" was injected.

Spraying—C. W., white male, aged 24, got his feet wet and the following evening his throat was sore. By morning he could hardly swallow and breathing was loud and noisy. The pharyngeal wall was very red and swollen. The uvula appeared as a large spheric swollen body. 10 c. c. mercurochrome 20 per cent was given by the family physician and the patient sent to the hospital. An atomizer was filled with streptococcic "phage" and the pharynx was sprayed every thirty minutes. Within twelve hours a fine red rash appeared on the body and the inflamed throat began to cool down. Four days later he left the hospital much improved and comfortable. The "phage" spray was used four days. The patient and family physician were well pleased with the remedy. The "phage" was moderately active against the cultured streptococcus from the patient's throat.

Irrigation—Mrs. W., white female, aged 40 years, had pneumonia and a right side pleural empyeme of eight weeks' duration. Drainage was established through rib resection and the streptococcus hemolyticus was cultured from the pus. Her temperature ranged around 103 degrees Fahrenheit for two weeks and during this time Dakin's solution and gentian violet had been used intermittently and the edges of the wound were ulcerated and reddened. 30 c. c. of streptococcus "phage" was irrigated into the pleural sac twice daily for two days and once daily for eight days. After six days the wound stopped draining and the opening was greatly narrowed from healthy granulations. The surgeon, a man of wide experience, said that "phage" had undoubtedly shortened the convalescence several weeks.

Mrs. W. V. R., white female, aged 48 years, was admitted to St. Joseph's Hos-

pital suffering with acute appendicitis of four days' duration. A large dose of castor oil was taken 24 hours before admission. Upon opening the peritoneum thin gray pus escaped. The intestines were bathed in pus and appeared congested. 20 c. c. of bacillus coli "phage" was placed in the peritoneal cavity and 5c. c. was given intravenously, and drainage was established. The following day a fecal fistula developed through the drainage wound. Bacillus coli communior was cultured from the pus. B. coli trained "phage" was instilled twice daily for five days, then once daily for five days. The fecal fistula stopped after the second day and healing readily ensued. A secondary closure was done after ten days because of probable hernia developing at the site of drainage. This was effected with little difficulty and without infection as the sutured wound was daily moistened with staphylococcus "phage." The patient was delighted with the "phage" treatment and her doctor was favorably impressed.

Intravenously—Mrs. L. J., white female, aged 20 years, was admitted to St. Joseph's Hospital Dec. 21, 1928, complaining of pain in the right side, nausea, and vomiting. An operation revealed twisted strangulated bowel by fibrous bands which was relieved by cutting the band. Fever was constantly high for six days. Streptococcus hemolyticus was cultured from the blood Dec. 27, 1928, which could not be sub-cultured. Three c. c. of streptococcus trained "phage" was given intravenously Dec. 22 and Dec. 23. Whether this prevented the sub-culture is not known. On Dec. 29, 1928, the temperature came to normal and except for a slight rise of fever on Dec. 31, 1928, it continued normal until the date of discharge, Jan. 6, 1929.

Miss A. M., white school teacher in a small town in East Tennessee, became ill with typhoid fever. The State Board of Health Laboratory at Chattanooga returned a positive Widal test for B. typhosus on her blood. It was the third week of fever when we were requested to give her some "typhoid Phage." Three c. c. of the trained typhoid "phage" was given intravenously.

A rise and fall of temperature followed administration and the temperature remained subnormal to normal. Two weeks later she considered herself entirely recovered with only one slight rise of fever after that following the "phage" injection. Specific "phage" for typhoid is very effective.

Intra-spinally—J. P., white male, aged 17 years, had an acute illness in December which was regarded as influenza. He was hospitalized for pain in the right antrum. This was drained. Twenty-four hours following the operation the temperature rose to 105 degrees with symptoms of meningeal irritation. The spinal fluid was turbid containing 800 leukocytes, 95 per cent neutrophils per c. m. 10 c. c. streptococcus "phage" was injected through the spinal needle. Culture was negative. Twelve hours later a painless swelling appeared in the forehead. After two weeks it was aspirated. Streptococcus hemolyticus was cultured from the pus. Pneumonia and pleural empyema developed during the seven weeks of illness. The spinal fluid cleared after repeated "phage" injection and remained so until just before death. Bacteriophage was injected into the spinal canal every time the fluid was withdrawn (12 times). The left pleural cavity was drained during the fourth week and "phage" irrigation promptly lessened the inflammation and exudate until healing obtained. Sudden death occurred during the seventh week of hospitalization. Necropsy revealed a circumscribed frontal osteomyelitis, localized frontal meningitis, and frontal lobe abscess with rupture into left ventricle. There were two sterile blood cultures. Aphenia was evident during the last week of illness. At the beginning of illness the frontal osteomyelitis doubtless occurred and the frontal lobe abscess developed at the time of the antrum operation. The "phage" may have helped to localize the meningitis, and retarded the streptococcal invasion.

Conclusions—Case histories exemplifying the therapeutic application of bacteriophage in suppurative diseases are given and justify the concept that it is a specific

therapeutic agent worthy of general trial. Drainage of necrotic tissues is indicated, though "phage" may be applied locally, per irrigation, subcutaneously, intravenously, or intraspinally. However if used before necrosis has developed the inflammatory process stops in about three hours after application.

DR. WM. LITTERER, Nashville: Mr. President and Gentlemen: Several years ago, I undertook the study of bacteriophage for my own satisfaction, and I came to the conclusion that the bacteriophage was a distinct and definite entity, something new. I further found out to my own satisfaction that the bacteriophage was distinctly and definitely specific for certain type of micro-organisms suitable to it. In other words, there must be a different bacteriophage for each micro-organism, even for related strains. There are many strains of streptococci, staphylococci, *B. Coli*, and practically all other micro-organisms, so it is essential to possess different strains of bacteriophage for their respective micro-organisms like a key fits a lock. This specificity of the bacteriophage is its chief drawback, since many strains of the "phage" have not been developed. Much is yet to be learned about it, and especially the discovery of many different specific bacteriophages. Possibly a polyvalent bacteriophage may be found. It has been proved that the therapeutic effects are wonderful where the bacteriophage is specific or fits exactly with the infecting micro-organisms. The future, of course, depends upon the ability of investigators to find suitable bacteriophages specific for the infecting micro-organisms.

I guess quite a number wonder what this bacteriophage is all about. Even the bacteriologist and the laboratory men don't know very much about it. There is a difference of opinion as to what it really is. We know it is ultra-microscopic, it is so small that with the microscope one cannot see it. We might as well say that it is a disease of bacteria. d'Herelle, the discoverer, believes that it is a very small micro-organism that attacks and eats up the bacteria. Why not conceive of bacteria of smaller size attacking bacteria of larger dimensions. This is about as good an explanation as any. Some say it is a ferment, but

what we do know is that it is a very small something that dissolves or eats up the bacteria.

Just a word concerning its probable therapeutic action from another angle. Since the final prepared bacteriophage before infecting is essentially rich in proteus, some investigators have questioned its specific action. They are of the opinion that the beneficial action obtained is due to a non-specific protein, similar to the injections of milk, peptones, typhoid facilli, etc., in epididymitis, rheumatism, and other chronic conditions. Work is now being done to concentrate and purify the bacteriophage so as to eliminate as much as possible all foreign protein. Until this is done there will always be some dissentors as to the specific action of the bacteriophage.

One important point that the essayist failed to mention, and that is the work of Larkum of the Michigan State Board of Health. His work tends to prove that the typhoid bacilli and paratyphoid A and B, when treated with their respective bacteriophages, can be made so that only one injection given to an individual will confer a more rapid and lasting immunity to typhoid and paratyphoid infections than the regulation three dose method of the triple typhoid vaccine ordinarily employed for the immunization against these infections. He further claims that very large doses can be administered with little or no reactions. If this be true, certainly this discovery will revolutionize the procedure for the immunization against typhoid and paratyphoid infections. Further work yet is to be done to prove the validity of his assertions.

Dr. J. A. McIntosh, Memphis, (closing): I have here in my hand a culture of typhoid and a culture of the typhoid bacteriophage, showing the effect of "phagic" action.

Bacteriophage will doubtless be upon the market soon at a price to cover the "overhead." It is now within reach of those who practice in hospitals because the hospital laboratories can make the "phage." It is easy to prepare and easy to contaminate. It may be kept on the shelf in a dark place at room temperature.

Dr. Litterer mentioned the fact that it is fascinating working with "phage" and one is likely to neglect the regular duties. We have found it so.

ENDOMETRIOSIS*

H. M. TIGERT, M.D., Nashville

THE object of this communication is to review very briefly the salient points contained in one of the most interesting chapters developed in gynecology within recent years. Numerous enthusiastic workers have developed a voluminous literature based on clinicohistologic studies and experimental research. Wide difference of opinion about many phases of the subject still exists and constitutes a prolific source for further study and investigation.

The term endometriosis indicates a morbid growth of endometrium-like tissue in an abnormal location. The anatomical distribution of such ectopic endometrial tissue is extensive and gives rise to highly diversified clinical manifestations, which until recently had been regarded as representing entirely separate entities.

This endometrial tissue growth may occur in any of the pelvic organs, on the pelvic and abdominal peritoneum, along the intestinal tract, in post operative scars of the abdominal wall subsequent to operations on the uterus involving the endometrium or endosalpinx, and in various other places anatomically more or less remote. Dr. John A. Sampson first employed endometriosis to indicate conditions arising from both misplaced uterine and tubal mucosa, even though he realized that it was not strictly correct in the latter.

The term mullerianosis was suggested as inclusive and correct, but was not adopted because it implied an embryonic origin, did not specify the mucosal derivation, and was not as descriptive as endometriosis. The names endometrioma and mullerianoma, suggested by Blair Bell and Bailey, respectively, were objected to because it did not appear that the lesions were true neo-

plasms, nevertheless heterotopic endometrial growth is not infrequently referred to as endometrioma. Sampson thought he could discriminate between those of endometrial origin and those of endosalpingeal origin. Later he found this differentiation erroneous.

Historically, endometrial proliferation dates back to 1860 when Von Rokintansky first described adenomyomas as pathologic entities. For more than thirty years no special interest in this observation was displayed. In 1895 Von Ricklinghausen published the results of his studies in connection with the etiology of adenomyoma, evolving the famous Wolffian body cell rest theory. Cullen, the most distinguished American authority on adenomyoma, working independently but contemporaneously with Von Ricklinghausen, arrived at the conclusion that the glandular elements are developed from and connected with the glands of the uterine mucosa. He is supported in this view by both Opitz and R. Meyer. It is stated that only one form of adenomyoma, that which grows in the parametrium, is probably derived from embryonal rests. Iwanoff explained the subserosal adenomyoma of the uterus as a transformation of peritoneum into gland structure. Aschoff and L. Pick concurred in this view. Meyer, after holding various views, finally came to be the most ardent defender of the serosal theory. Halban advanced the theory of lymphatic permeation. In 1918 Lockyer's work on "Fibroids and Allied Tumors" was published. He was a strong adherent to the mesonephric conception. In 1921 Sampson published his first paper on endometriosis and discussed perforating hemorrhagic cysts of the ovary, also known as chocolate or implantation cysts of the ovary. Prior to this several observers, Cullen among them, had described endome-

*Read before the Tennessee State Medical Association, Jackson, April 8, 1929.

trium-like structures in the ovarian stroma. It was due to the meritorious work of Sampson that renewed interest in endometriomas was aroused with a notable revival and discussion of their etiology. He asserted that "Epithelial lesions of true peritoneal endometriosis are implantations arising from fragments of endometrial tissue (possibly in some instances tubal), which have escaped into the peritoneal cavity. In most instances these fragments are derived solely from tissue escaping through the tubes during menstruation and in others there is an additional or secondary source from ectopic endometrial foci in the pelvis which have reacted to menstruation." This implantation theory has gained very general acceptance. Sampson also states his belief in the power of endometrial tissue to metastasize through lymph channels reached by the mucosal invasion of the uterine wall.

The viability of desquamated endometrial epithelium has been seriously questioned by many, however Cron and Gey have found that the menstruating endometrium is not only viable, but can be grown in tissue cultures.

Van Oettingen and Luden reported very striking findings in a series of twenty ovarian cysts containing endometrial tissue which they divided into a superficial group and a deep group. In the latter group they were able to trace the origin of the organoid tumors to the ovarian epithelium and concluded that since it had a definite connection with the surface of the ovary, Sampson's theory was incorrect.

Semb in a study of ovarian endometriomas concluded that the histogenesis is from the follicular epithelium.

So far as the Wolffian body theory is concerned, in recent times the attitude of those most competent to express opinions with reference to the etiology of endometriomas, seems to have been expressed by R. Meyer, when he declared the Wolffian body theory to be "a myth that is dying very slowly." Among the many theories thus far postulated to explain endometriosis and substantiated by extensive clinical study

and histologic research the true explanation is very probably lodged in some one or combinations of the following:

1. "The serosal theory (Iwanoff and Meyer) (Lockyer), which indicates that histologically typical uterine mucosa, may arise from a metaplasia of the peritoneal mesothelium."

2. Implantation theory (Sampson) which implies a regurgitation of desquamated endometrium through the fallopian tube taking place during menstruation and frequently accentuated by the reaction of the secondary foci to menstruation.

3. The metastatic theory (Halban), invasion by way of the lymph channels giving rise to extraperitoneal endometrial tissue.

4. Develop mentally misplaced endometrial tissue.

5. Ovarian histogenesis through the germinal epithelial. It is a well-known fact that the germinal epithelial has extraordinary power of producing diversified epithelial structures and it is held by some that in adult life it may invade the ovarian stroma and create a true endometrial mucosa.

To these may be added transplantation endometriosis, which is generally accepted as an established clinical fact. This phenomenon consists in the appearance of endometrial tissue in operative wounds following operations on the pelvic generative organs.

Fortunately out of this maze of uncertainty and conflicting views concerning a form of tissue growth, certain definite pathologic and clinical entities emerge. Through the well-known work of Cullen and others, the histologic structure, physical signs and clinical behavior of adenomyoma of the uterus has long been familiar to the profession and requires no special discussion. This is the best example of direct or primary endometriosis, being "misplaced endometrial tissue in the uterine wall, which can be demonstrated to have arisen from the direct invasion of the myometrium by the mucosa lining the uterine cavity." The endosalpinx may invade the tubal wall producing a similar condition.

According to Sampson adenomyoma of the uterus may take place through the implantation process, the invasion being from the serous side of the uterus. The ovary acting as an intermediate host for the migrating endometrial cells. Adenomyomas of the rectovaginal septum, described by Cullen and recognized for sometime, are undoubtedly a type of endometriosis. It is believed that they are likely the result of endometrial implants from perforating chocolate cysts of the ovary.

Since May, 1921, when Dr. Sampson read his paper on Chocolate Cysts of the Ovary before the American Gynecological Society, the attention of abdominal surgeons has been sharply challenged with reference to this condition. In the minds of many, he has practically established the histogenesis of chocolate cysts. Discarding all other theories, he contends that the endometrial tissue is conveyed to the ovary by a back flow of menstrual fluid, containing particles of desquamated uterine mucosa, through the tubal ostium. Having become implanted in the ovarian stroma, through response to the periodic menstrual impulse, hemorrhagic cysts are formed with a tendency to perforation and liberation of addition glacial tissue in the pelvic cavity giving rise to the characteristic adenomatous adhesions and invasive tumors. Sampson says, "The ovary appears to be a sort of intermediary host, hot bed, or incubator, which sometimes imparts a greater virulence to the epithelial cells developing in it." He also states, "Peritoneal endometriosis may occur by direct implantation from regurgitated menstrual fluid through the ostia and without intervention of the ovary." The primary peritoneal implants are usually small and are easily overlooked. However, sometimes they spread and become invasive. Hemorrhagic cysts of the ovary are usually of small size, seldom being more than a few centimeters in diameter. Clinically the chief characteristics are the thick brown syrupy contents of the cysts (hence, the name chocolate cysts), the extraordinary density of the adhesions, lack of evidence of pelvic infection from the usual causes, with

the presence of indurated areas and nodules beneath the peritoneum of the cul de sac or in the wall of the rectum or sigmoid.

In the abdominal cavity, in addition to the generative organs and the peritoneum adjacent thereto, endometrial adenomas have been reported in connection with the appendix, the cecum, the sigmoid and the rectum. Sampson has reported "two cases of endometrial cysts of the ovary showing invasion of the bladder wall and producing a cystoscopic picture sufficiently characteristic to permit of a preoperative diagnosis of the underlying condition." In the abdominal wall endometriomas have been found in the navel, in the groin and in the post operative scars following abdominal operations. Of 29 cases collected by Heaney in 1925, 14 followed ventrofixation, two hysterectomy, three pelvic operations, two appendectomy, one oophrectomy, seven after operations in which the pregnant uterus had been opened by intent or accident.

He states that the tumors appear in the laparotomy scars usually a few weeks or months after operation, they may remain latent and not appear for several years. As a rule, the nodules swell and are painful during menstruation and for several days afterwards. They are tender to pressure at all times. They have the feel of a small omental hernia and later become raised above the skin and have a bluish cast.

It is contended that the frequency of endometriosis is not generally appreciated by surgeons because many of the lesions are small and are not looked for. Sampson, who constantly searches for them, encountered the condition in 98 out of 332 operations for pelvic disease in one year. In other series, extending over one year, in 296 abdominal operations for pelvic conditions endometrial implants on the surface of various structure in the pelvis was encountered 64 times.

In typical cases of peritoneal endometriosis the preoperative diagnosis can sometimes be made. The condition is suggested by the presence of adherent masses and

nodules in the pelvis, the age of the patient, dysmenorrhea, sterility, and exclusion of the usual causes of pelvic inflammation.

Certain prophylactic measures with reference to surgical technique have been suggested which are perhaps not without value. In passing it may be stated that the modern practice of insufflation of the oviducts for various purposes is not without danger. It should not be practiced near the menstrual period.

In the presence of extensive endometriosis involving the pelvis, radical removal of the internal generative organs is usually advocated. In certain types of cases, less severe and extensive, more conservative measures may be adopted. In view of the known nature of endometriomas regardless of their origin and the known effect of ovarian hormone on endometrial tissue regressive changes might naturally be expected following removal of the ovaries and after the menopause. Clinically this does not occur. On this point Graves makes the following statement: "I may say that from what I have learned from experience and a study of cases in the literature, I cannot subscribe to the sweeping statement that ectopic endometriomata do not retrograde after removal of the ovaries; nor are we justified in making a general statement to the contrary. But I am convinced that in the majority of cases the endometriomata may be counted on to atrophy in the absence of ovarian function and that this probability in their behavior is a valuable guide to treatment in cases like those of rectovaginal adenomyomata in which a radical operation would greatly mutilate the patient or seriously endanger her life."

DR. W. T. BLACK, Memphis: Dr. Tigert has presented the subject of "Endometriosis" in a very clear and concise manner. We recognize this condition more often now since we are looking for it than we formerly did. I have had two cases in the last three weeks, and it is very interesting to know or to study something about the etiology of the subject. Dr. Tigert has given you the various theories of the causation of the growth, and no doubt Sampson's theory is the one generally accepted. While we know that you may have a metaplasia of the peritoneal mesothelium, probably brought about by some en-

docrine disturbance, etc., and cells may undergo a transformation, that function similar to endometrial glands.

Although this may be true, you could not explain possibly a clinical fact, and, that is, that in none of these case reports of abdominal endometriosis have been reported in men. Consequently this clinical fact would speak somewhat against the above theory. The mullerian duct theory could account for some of these neoplastic growths, but endometrial transplantation is more logical.

Cullen deserves the highest praise for his work on adenomyoma. Several years ago, contemporaneously with Von Ricklinghausen and other men in the old country, he explained and demonstrated that glandular elements were formed resembling the glands of the uterine mucosa. Sampson's monumental work has certainly been very illuminating, and I think accepted by the majority of men in this country or probably over the world.

It is not hard to conceive of endometrial tissue being pushed back through a tube, for instance, in stenosis of the cervix, or where you have tumors in the uterus interfering with the patency of the uterine canal.

I have never seen but one case of endometriosis of the abdominal which bled each month, but several such cases are reported. In a paper read about four years ago, Sampson was advocating the possibility of the causation of fibroid tumors originating from this irritating endometrial tissue in the wall of the uterus. I have not seen any recent literature on the subject and do not know what his position is at present.

The symptoms of this condition are not unlike those found in other growths, unless you have an extensive invasion. If a limited growth the symptoms would depend entirely upon the location of the tumor, whether between the rectum and uterus, the abdominal wall, or at the umbilicus. There may be bladder or rectal symptoms. Some women who have these endometrial growths have pelvic pain and backache, an acquired dysmenorrhea is sometimes a symptom. The symptoms depend entirely upon the location and the extent of the growth.

The treatment should be conservative in a small growth and not disseminated in the young woman. Where you have an extensive condition with marked adhesions everywhere, looking very much like a shepherd dog that had been through a cockle burr patch, then radical surgery would naturally be the treatment of choice, especially if over forty years of age.

DR. L. E. BURCH: Mr. Chairman and Gentlemen of the Tennessee State Medical Society:

Dr. Tigert has made an excellent presentation of a most interesting subject. In many ways this is a new subject and I don't believe the profession

as a whole realizes how important it is and how often it occurs.

Endometriosis means that there is a bit of endometrial tissue implanted on some organ in the pelvis. The most common sites of implantation are the ovaries and Douglas's cul de sac. This tissue each month menstruates and a cyst is formed around it. The contents of the cyst is retained menstrual fluid. It is from the color of the contents that the cyst gets its name—chocolate. These cysts are usually small and frequently they rupture. The contents of the cysts contain bits of endometrial tissue and this naturally produces a metastasis when rupture occurs.

Dr. Tigert has brought out the various theories of how this interesting condition is produced. Probably the best recognized one is that of Sampson. The diagnosis is not an easy one and often the condition is not discovered until the specimen reaches the laboratory. After one's attention has been called to the condition you naturally are on the lookout for it and will often discover it microscopically. I have been able to make a diagnosis before operation in a small number of cases.

It is quite suggestive of a chocolate cyst when a patient has a history of a normal menstrual period up to a certain time and then develops a marked dysmenorrhea without cause. If on digital examination a mass is found that has a leathery feel, is quite tender and which may be unilateral, bilateral or in the cul de sac, a provisional diagnosis of endometriosis is justifiable.

Floyd E. Keene of Philadelphia has brought out a very important point in regard to the management of chocolate cysts in the pelvis which are associated with a like condition in the rectum or bladder. He advised the removal of mass in the pelvis and states that if this is done it will cure the tumor in rectum or bladder and special treatment to these organs is unnecessary.

There are two plans of treatment, one radical and the other conservative. I believe the profession is beginning to adopt the conservative plan whenever possible. It is to be remembered, however, that the ovaries are the accelerators and if these are removed, menstruation stops and in the great majority of cases a cure is effected.

I am presenting a slide which shows a small chocolate cyst that was associated with a fibroid tumor. This cyst was entirely overlooked at time of operation but was discovered in laboratory. You see the endometrial gland in the interval stage in ovarian stroma with a good deal of hemorrhage around it. One can see how interesting this is and one naturally asks the question

how did this endometrial tissue reach this ovary and produce this cyst. I believe the condition is a good deal more common than we appreciate.

I think Dr. Tigert is quite wise in bringing this subject before the Association. It is a most interesting disease and produces a condition that not only ruins the health of the patient, but in many cases threatens her life or possibly takes her life.

DR. H. M. TIGERT, (closing): The discussion has been very illuminating. I am particularly grateful to Dr. Burch and Dr. Black for the information they supplied.

I think epithelial cell proliferation is, perhaps, the most interesting and probably the most important subject in the whole domain of medicine. Evolutionarily, we undoubtedly began as epithelial cells and have attained our present proportions more through the process of epithelial proliferation than by any other known process. The lawful reproduction of epithelial cells is enormous in the human body. The grades between lawful epithelial cell proliferation and lawless epithelial cell proliferation are very gradual and vary all the way from epithelial structure, such as is seen in normal epithelial cell replacement, up to those in which epithelial cell proliferation eventuates in the various types of malignancy. The chief reason the cause of cancer is unknown is because it involves the cause of life itself. A study of Endometrioma, in my judgment, may eventually prove a stepping stone to the solution of the cause of carcinoma. Sampson has already taken a step in that direction. In his paper published in 1924 he has compared endometriosis with the behavior of various types of malignant diseases in the pelvis.

Recently Dr. Sydney S. Schochet, of Chicago, has done some very extraordinary work. He transplanted endometrial tissue into the anterior chamber of the eye and studied it in situ. He made some rather remarkable observations with regard to the circulation and cell proliferation in the transplanted epithelial cells. Thus far nothing definite with reference to the etiology of lawless proliferation has been evolved.

From a clinical standpoint the various theories advanced to explain endometriosis are not as important as the clinical recognition of the condition at the operating table. Certain types of adenomyomas, especially those in the rectal and vaginal walls and those seen in abdominal scar tissue, should be diagnosed prior to operation. Chocolate cysts are easily recognized when the abdomen is opened.

THE JOURNAL

OF THE

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Devoted to the Interests of the Medical Profession of Tennessee
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

H. H. SHOULDERS, M.D., Editor and Secretary

DECEMBER, 1929

EDITORIAL

A CHANGE IN THE SUBSCRIPTION YEAR OF THE JOURNAL

The House of Delegates at the Jackson meeting voted to change the subscription year of the Journal so as to correspond to the calendar year.

Heretofore the membership year of the State Society has corresponded to the calendar year, but the subscription year of each member to the Journal was for twelve issues—from May to April, inclusive.

The fiscal year of the society heretofore has been from April 1st to March 31, inclusive. This was fixed arbitrarily in order that a financial statement could be made to the House of Delegates at the April meeting.

The action of the House of Delegates above referred to was taken at the request of the Board of Trustees and was for the purpose of making the membership year the Journal subscription year and the fiscal year all correspond to the calendar year.

It is readily seen that having the fiscal year the membership year and the Journal subscription year ending on different dates created a state of endless confusion.

The effect of the action of the House of Delegates on this subject will be that Volume XXII of the Journal for the year 1929 will contain only eight numbers—from May to December, inclusive. It will also mean that members whose dues for the year 1930 are not paid by January 15th will not receive number one of Volume XXIII of the Journal for the year 1930.

Dues for the year 1930 should be paid by January 1st, 1930. Officers of county so-

cieties are requested to bring this matter to the attention of members at once. Correspondence on this subject has already been forwarded to officers from the state headquarters. Members who read this will please forward dues to the secretary of their county society before January 1st and officers of county societies will please report to this office by the 10th of January and thus avoid any confusion and lost motion.

Hereafter a financial statement to the House of Delegates can embrace financial transaction for the calendar year preceding the meeting and for the first quarter of the year in which the meeting is held.

CENTENNIAL CELEBRATION, NASHVILLE,

APRIL 8, 9, 10, 1930.

This office has kept in touch with the Committee on Medical History. This committee, in spite of many misfortunes, is making wonderful progress. An attractive volume containing the history of organized medicine in Tennessee for one hundred years will be ready for exhibition and sale at the meeting in April.

The program for the meeting is in process of preparation. Sufficient progress has been made in this respect to insure a program that will be attractive to every member of the state society regardless of where he lives and regardless of the type of work he does.

This will be the only meeting of its type we have ever held. It marks the first century milestone in the progress of organized medicine in our state. We have no precedent to guide us in the preparation of the program, but we have sought and obtained the counsel of many who have participated in similar celebrations.

The House of Delegates many years ago elected to come to Nashville for this celebration and the Nashville Academy of Medicine and Davidson County Medical Society have accepted the responsibility of host in a gracious manner.

Dr. J. O. Manier, as president of the Academy, asked Dr. W. D. Haggard to serve as chairman of the committee on arrangements and Dr. Haggard accepted the responsibility. He will have associated with him at work every member of the local society.

We want every member of the state society to mark the dates of April 8, 9 and 10 on his calendar and plan to be in Nashville on this occasion. There will not be another meeting like it in another hundred years and doubtless many of us will be unable to attend it in person.

CONFERENCE OF SECRETARIES AND EDITORS IN CHICAGO

Every year there is a conference of secretaries and editors of the state associations held at the headquarters of the American Medical Association in Chicago. These conferences are attended not only by the secretaries and editors of state societies. They are attended by the editor and manager of the American Medical Association, by the president and the president-elect of the American Medical Association and by the Board of Trustees of the American Medical Association. This brings together the executive officers of the component state societies and the national body. Such a conference was held in Chicago on Nov. 15, 16. It has been our privilege to attend three such conferences. The last one was probably the best one.

The following subjects were discussed:

"The Public Activities Committee of the Nebraska State Medical Association."

"A State Medical Association Constitution and By-Laws."

"Why a State Medical Journal?"

"The Present Status of Industrial Medicine."

"Some Important Problems."

"Descartes Was Right."

"Quo Vadis?"

The papers, together with the discussions, will appear in the bulletin published by the American Medical Association monthly except July, August and September.

From the subjects discussed it will be apparent that the executive officers of organized medicine in the various states, as well as the American Medical Association, are giving serious thought to the problems with which the practitioner of medicine is confronted at the present moment. There are many problems presenting themselves. It is up to medicine to confront them and solve them in a sane manner.

There are many well educated and well paid sociologic workers in the field today whose work in the main has the effect of stimulating prejudice in the lay mind toward organized medicine. These workers have a great deal of time to be used in the compilation of figures and statements which appear in the lay press at frequent intervals. These statements, in the main, could be controverted easily if doctors took the time to do it. We doctors have confined ourselves to medical publications with our statements.

There are men who are graduates in medicine who have never engaged in the practice of medicine but who have maintained membership in organized medicine who have spoken freely through the lay press in a manner that does not meet the approval of organized medicine.

Out of all the discussion that has taken place it seems there are a few fundamental facts about which all policies and statements might revolve. First, organized medicine does not claim to own the science of medicine. No one owns the science of medicine.

A cabinet officer said of Abraham Lincoln when he died: "Abraham Lincoln now belongs to the ages."

The science of medicine belongs to the ages.

Organized medicine has so conducted itself. It has made such regulations with respect to the use of new discoveries, and with respect to the conduct of its members toward each other, and toward the public, that it can justly lay claim to the *trusteeship* of the science of medicine.

The art of medicine is another thing. It belongs to doctors entirely. It is acquired

by them at the cost of effort and sacrifice. It belongs to them alone.

There are philanthropists whom we must credit with every good intention who, if allowed to, would place the trusteeship of medicine in some form of a lay board and make of doctors simple paid technicians in the ministration of medical benefits. This is the essential principle in what is generally termed state medicine.

The public is interested in good medical service. It has a perfect right to all the benefits that the science and art of medicine affords. *It is entitled to these benefits on the same basis that it is entitled to every other necessity that modern civilization affords.*

When an attempt is made to put medical service on the basis of socialism and business on the American plane of competitive enterprise, then it is that medicine suffers. The service to the public will suffer—the public will suffer.

There are many theories with reference to socialization which sound attractive regardless of whether they pertain to medical service or to other forms of service. The danger lies in the attractiveness of the theory. It is strange to note that business men, the heads of big concerns, with broad public contacts and an understanding of fundamental governmental principles, seem to see an advantage in the socialization of medicine and a disadvantage in the socialization of business. This inconsistency we cannot comprehend.

We will again repeat on this editorial page that if the project of socializing medicine succeeds, the socialization of business soon will follow.

MARRIAGES

Dr. Earl Dorris, of Bolivar, and Miss Opal Andrews were married in Jackson on November 11th.

NEWS NOTES AND COMMENTS

A colored doctor of Knoxville was recently fined for failing to report to the police a case of knife wound. This is a new law in Knoxville. Hospitals, doctors, ambulance drivers and other citizens are required to report to the police all shootings, cuttings, suicides or violent deaths.

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held on January 27, 1930.

Request for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

Drs. W. T. Swink and W. S. Lawrence of Memphis recently addressed the Winona District Medical Association at Grenada, Miss.

A recent report from Knoxville says that Dr. E. S. Kyle is slowly improving from heart trouble which has confined him to his home since August.

Recently Dr. W. J. Mayo of Rochester, passed through Memphis. Among the many press reports of the short visit the most interesting one was Dr. Mayo's praise of the Memphis hospitals.

Dr. Robert Pillow, Jr., has left Pine Breeze Sanitarium, Chattanooga, and will practice with his father in Columbia.

The Southern Medical Association will meet in Louisville in 1930.

Dr. W. F. Boze of Carthage was painfully injured in an auto accident recently while driving with a patient to a Nashville Hospital.

Drs. Clark and Johnson of Sparta have begun the erection of a building for office use. In addition to the space they will occupy there will be hospital and operating rooms for patients of the other doctors in the town.

Dr. Chas. H. Mulherin of Newbern was painfully injured in an auto accident about the middle of November.

Dr. F. E. Hasty of Nashville was elected chairman of the Ear, Eye, Nose and Throat Section of the Southern Medical Association.

The McMinn County Herald reports that work has started on a new office building which is being erected by Drs. Carey and Edwin Foree.

Drs. B. N. White and W. T. Robison, of Murfreesboro, have moved their offices to Major Richardson's old place on Main St.

Dr. Beulah Kittrell, formerly connected with the Children's Hospital of San Francisco, has become house physician at the Riverside-Fort Sanders Hospital at Knoxville.

DEATHS

Dr. C. A. Forgey, 68, of Columbia, died November 14 of injuries sustained by a fall in an oil pit at a local garage.

Dr. Forgey graduated from the University of Tennessee, College of Medicine, Memphis, in 1890.

Dr. R. H. Perry, 40, of Nashville, died November 15, following several months of ill health.

Dr. Perry graduated from Vanderbilt Medical School in 1913 and was licensed to practice in the same year.

Dr. J. D. Lawson, 35, of Nashville, died November 10. He was a graduate of the University of Tennessee College of Medicine, Memphis, in 1925.

MEDICAL SOCIETIES

Decatur, Chester, Henderson—On November 14th this society met in Lexington. The doctors present were Drs. Logan McMillan, Bolen, Huntsman, Johnson, Powers, Brandon, Arnold, Howell and Goff.

Interesting papers were read by Dr. Bolen and some case reports were given by Dr. C. B. Vickey of Jackson.

The December meeting will be held at Henderson on the 12th.

Sullivan, Johnson—The society met November 1st. Dr. B. T. Horton of St. Mary's Hospital, Rochester, Minn., spoke on "Buerder's Disease." About thirty doctors were present and arrangements were made for the December meeting to be held in Kingsport on the sixth.

Robertson County—The November meeting was held at the Mathews-Moore Clinic. After lunch the scientific program was presented. Dr. G. R. Jones, Orlinda, read a paper on "Osteomyelitis" and Dr. A. R. Kempf on "The Technique of Intravenous Injections."

The following members of the society were present: Drs. Freeman, Dye, Padfield, Bradley, Moore, Mathews, E. S. and J. S. Hawkins, Kempf, Reeves, Jones, Fentress and Fyke. Dr. W. L. Gossett of Adairville, Kentucky, and S. O. Murphey, Springfield, were visitors.

After dispensing with the scientific programme, the following officers for 1930 were elected: President, Dr. J. W. Thomas, Cross Plains; vice-president, Dr. S. J. Fentress, Goodlettsville; secretary and treasurer, Dr. W. F. Fyke, Springfield. The next meeting of the society will be held in Springfield on Tuesday, December 17.

Knox County—On November 12th sixty-one doctors of Knox County Medical Society paid tribute to Dr. L. L. Sheddan.

After 21 years in Knoxville, he is to return to his old home at Fayetteville, Tenn.,

CORRECTED ROLL OF COUNTY SOCIETIES

COUNTY	PRE-IDENT	SECRETARY	MEETING DATE
Anderson	H. F. Stiltner, Windrock	J. S. Hall, Clinton	1st Mon., 2 P.M.
Bedford	John W. Sutton, Petersburg	W. H. Avery, Shelbyville	3rd Thurs., 2 P.M., Dr. Ray's office
Benton	See Carroll County.		
Blount	K. A. Bryant, Maryville	J. A. McCulloch, Maryville	Every Thurs., 8 P.M., First Natl. Bank Bldg.
Bradley	W. H. Sullivan, Cleveland	E. R. Ferguson, Cleveland	1st and 3rd Thurs., 7 P.M., Cour. House.
Campbell	J. W. Presley, Pioneer	F. A. McClintock, Newcomb	
Carroll	H. T. Collier, McKenzie	A. C. Elinor, McKenzie	Carroll, Weakley, Benton, Henry, 2nd Tues., Hotel Lynn, McKenzie.
Carter	J. L. Cottrell, Elizabethton	E. T. Pearson, Elizabethton	1st Mon., 7 30 P.M., First Natl. Bank Bldg.
Cheatham	W. S. Lockert, Ashland City	P. L. Pitt, Ashland City	
Chester		J. D. Anderson, Henderson	With Decatur and Henderson, 2nd Tues.
Claiborne	See Hancock County.		
Clay	See Macon County.		
Cocke	A. L. Proffitt, Newport	J. E. Hampton, Newport	1st Tues.
Coffee	R. L. Dossett, Tullahoma	E. P. Vaughan, Manchester	1st Thurs.
Crockett	See Dyer County.		
Cumberland	E. W. Mitchell, Crossville	V. L. Lewis, Crossville	Cumberland, Overton, White, 3rd Thurs.
Davidson	J. O. Manier, Doctors' Bldg.	Sam P. Bailey, Doctors' Bldg.	Every Tues., 8 P.M. Doctors' Bldg.
Decatur		J. L. McMillan, Decaturville	(See Chester County.)
Dickson		R. P. Beasley, Dickson	
Dyer, Lake and			
Crockett	C. A. Turner, Dyersburg	E. H. Baird, Dyersburg	1st Wed., monthly.
Fayette		J. W. Morris, Somerville	Fayette-Hardeman, 1st Thurs.
Franklin	L. A. Templeton, Winchester	John P. Grisard, Winchester	Last Fri., 7 P.M., Court House.
Gibson	W. C. McRee, Trenton	George E. Spangler, Humboldt	
Giles	A. M. Allen, Buford	W. J. Johnson, Pulaski	(Monthly)
Greene	L. E. Coolidge, Greeneville	M. A. Blanton, Mosheim	2nd Tues., 7 P.M.
Hamilton	J. H. Revington, Volunteer Bldg.	S. F. McIntosh, Volunteer Bldg.	Each Thurs., 8 P.M., Manufacturers' Association Bldg.
Hamblen	William E. Howell, Morristown	C. T. Carroll, Morristown	
Hancock, Claiborne,			
Union		I. N. Ford, New Tazewell	2nd Mon.
Hardeman	See Fayette County	J. Y. Alexander, Middleton	1st Tues. in Jan., April, July and October, Belvoir.
Hardin, Lawrence,			
Lewis, Perry,			
Wayne	J. T. Stockard, Lawrenceburg	J. W. Danley, Lawrenceburg	Last Tues.
Hawkins		J. S. Lyons, Rogersville	
Haywood	J. M. Chambers, Brownsville	J. L. Edwards, Brownsville	Last Tues., 7 P.M.
Henderson		J. F. Goff, Lexington	(See Chester County.)
Henry	R. G. Fish, Paris	A. A. Oliver, Paris	(See Carroll County.)
Hickman	C. V. Stephenson, Centerville	L. F. Prichard, Only	
Humphreys	J. T. Cooley, Waverly	W. W. Slayden, Waverly	
Jackson	J. D. Quarles, Whitleyville	L. R. Anderson, Gainesboro	1st Fri., Court House. (See Macon County.)
Jefferson		B. M. Tittsworth, Jefferson City	
Johnson	See Sullivan County.		
Knox	Ray DePue, West Church St.	Jesse C. Hill, 4323 Lyons View Pk.	Every Tues., 8 P.M., Medical Bldg.
Lake	See Dyer County.		
Lauderdale		W. V. Sanford, Ripley	2nd Thurs.
Lawrence	See Hardin County.		
Lewis	See Hardin County.		
Lincoln	D. T. Hardin, Fayetteville	J. V. McRady, Fayetteville	
Loudon	W. H. Harrison, Loudon	J. G. Eblen, Lenoir City	1st Thurs., Loudon; 3rd Thurs., Lenoir City, 7 P.M.
Macon	M. H. Allen, Lafayette	P. East, Lafayette	1st Wed., each quarter.
Madison	J. R. Thompson, Jackson	B. C. Arnold, Jackson	1st and 3rd Tues., 7:30 P.M., Y. M. C. A.
Marshall		J. A. Hardison, Lewisburg	4th Thurs.
Maury	Watt Yeiser, Columbia	W. K. Shedd, Columbia	2nd Mon., 11 A.M., Elk Lodge Room.
Monroe	H. C. Shearer, Madisonville	H. M. Kelso, Madisonville	2nd Tues., Aug., Sweetwater.
Montgomery	C. N. Keatts, Clarksville	Bryce F. Runyon, Clarksville	3rd Thurs. night.
Morgan		J. F. Love, Lancing	
McMinn	J. R. Nankivell, Athens	C. O. Foree, Athens	2nd Thurs., 2 P.M., Dr. Nankivell's office.
McNairy	R. M. Hendrick, Selmer	H. C. Sanders, Selmer	3rd Thurs.
Obion	C. B. A. Turner, Union City	F. B. Kimzey, Union City	
Overton	See Cumberland County.	A. B. Qualls, Livingston	3rd Fri.
Perry	See Hardin County.		
Polk	C. W. Strauss, Copperhill	F. O. Grissler, Isabella	
Putnam	H. H. Taylor, Cookeville	C. P. Martin, Cookeville	1st Thurs., 1:30 P.M.
Roane	R. E. Regester, Rockwood	T. H. Phillips, Rockwood	1st and 3rd Tues., 1 P.M., Red Cross Rooms.
Robertson	J. S. Freeman, Springfield	W. F. Fyke, Springfield	3rd Tues.
Rutherford		J. A. Scott, Murfreesboro	
Sevier	Ashley W. Ogle, Sevierville	R. J. Ingle, Sevierville	1st Mon., 7 P.M., First Natl. Bk. Bldg.
Sullivan	T. B. Yancy, Kingsport	H. S. Smythe, Bristol	1st Fri.
Shelby	O. S. McCown, Bank of Com. Bldg.	A. F. Cooper, Bank of Com. Bldg.	1st and 3rd Tues., Medical Arts Bldg.
Smith	R. E. Key, Monroville	B. J. High, Elmwood	1st Fri.
Sumner	L. M. Woodson, Gallatin	John R. Parker, Gallatin	
Unicoi	R. E. Stack, Erwin	J. R. Moody, Erwin	Every other Thurs.
Union	See Hancock County.		
Warren		John S. Harris, McMinnville	1st Wed., 1:30 P.M.
Washington	C. W. Friberg, Johnson City	Edward T. Brading, Johnson City	2nd Thurs. at noon, Hotel John Sevier.
Wayne	See Hardin County.		
Weakley	T. B. Wingo, Martin	J. E. Taylor, Dresden	3rd Wed., May, Aug., and Nov., at Martin. Also see Carroll County.
White	J. E. Mathis, Bearden	S. E. Gaines, Sparta	2nd Thurs., Dr. Gaines' office. See Cumberland County.
Williamson		K. S. Howlett, Franklin	2nd Tues.
Wilson	L. D. Allen, Smithville	J. R. Bone, Lebanon	Thurs. after 1st Wed., 2:00 P.M.

where he started practicing, and where he will continue, but to a smaller number of patients.

The farewell meeting was held at Whittle Springs hotel. Around the banquet table Dr. Ray DePue, Dr. E. R. Zemp, Dr. W. P. Wood, Dr. R. H. Newman, Dr. C. P. Jones, Dr. R. B. Wood, Dr. R. E. L. Smith, Dr. T. F. Fitzgerald, Dr. Walter Luttrell, and others spoke of the work of the white-haired guest of honor.

Dr. Sheddan has served as president of Knox County Medical society, of the East Tennessee and of the State Medical society.

Madison County—Dr. R. B. White discussed "Vascular Diseases of the Extremities" at the second November meeting.

MIDDLE TENNESSEE MEDICAL ASSOCIATION

The seventieth semi-annual meeting was held at Lebanon on November 14-15. In addition to an excellent scientific program a banquet was tendered the association by the Wilson County Medical Society. Drs. L. L. Sheddan, C. N. Cowden and Bernard Gaston made interesting after dinner talks.

Officers elected were: Dr. J. R. Gott, Murfreesboro, president; Dr. Murray B. Davis, Nashville, vice-president; Dr. Theodore Morford, Nashville, secretary-treasurer.

Shelbyville will entertain the Association at the spring meeting.

Davidson County—In November and December the following papers were read:

November 12th, "Lacrimal Sac Drain-

age," Dr. W. G. Kennon. Discussion opened by Dr. R. J. Warner.

November 19th, "Peptic Ulcer," Dr. Robert Caldwell. Discussion opened by Dr. M. B. Davis.

November 26th, "Experimental Studies on Guinea Pigs with Calmette B. C. G. Vaccine Number 26," Dr. William Litterer; "Administration of B. C. G. Number 26 by Mouth and Subcutaneous Inoculations in the Human," Dr. John Overton. Discussion opened by Drs. Hollis Johnson and H. G. Bradley.

December 3rd, "Undulant Fever," Dr. O. N. Bryan. Discussion opened by Dr. William Litterer.

December 9th, "The Influence of the Thyroid and Adrenals on the Production and Treatment of Peptic Ulcer," Dr. G. W. Crile, Cleveland; "The Liver," Dr. Chas. Mayo, Rochester.

BOOK REVIEWS

The matter of bookkeeping is a bugbear to most doctors. In the case of many physicians it is poorly done. It is so poorly done, in fact, that doctors' accounts often are not collectible after death.

Various systems of bookkeeping have been suggested and devised. One devised by the Colwell Publishing Company, Champaign, Illinois, and designated "The Physician's Daily Log" is decidedly the most simple and most complete system that we have ever examined. It has the elements of completeness and simplicity so combined as to highly recommend it for the use of physicians. Its cost is well within the reach of every one—only \$6.00 for a book that will last twelve months.

ABSTRACTS OF CURRENT LITERATURE

ANESTHESIA

By Hugh Barr, M.D.
Medical Arts Bldg., Nashville

General Anesthesia with Sodium Amytal, J. E. Struthers, M.D. Denver, Col. Colorado Medicine, Nov., 1929.

The author reviews eighteen cases of anesthesia with sodium amytal. Two of the patients received no preliminary medication, nine received morphine and atropine and seven with a chloretone suppository in addition to the hyperdermic. It was found that unconsciousness was produced in from seven to ten minutes after the intravenous injection. The common reflexes were abolished except occasionally the skin, sphincters, and laryngeal. The respirations were shallow, regular and slightly increased in rate. During injection there was some drop in blood pressure which rose again during the surgical procedure, also some cyanosis occurs. In two cases there occurred cyanosis and cheyne-stokes respiration.

The dose used was from seven and a half to fifteen grains depending on the patient. All but two of his cases were supplemented by addition of from a half-ounce to eight ounces of ether by inhalation. His conclusions are as follows:

1. Preliminary medication is essential for the best results with sodium amytal.
2. Relative small doses in combination with some other anesthetic gives an ideal anesthesia.
3. Rate of injection has a direct bearing on fall in blood pressure. Tendency to rise to or slightly above the presurgical reading during surgery.
4. That the general muscular physis and age seems to be a more definite factor in dosage than age.
5. A perfectly quiet induction of anesthesia, the patient being unaware that anesthesia is being induced.
6. No post-operative vomiting.
7. Delirium apparently no more frequent than with other anesthetics.
8. Negligible shock in poor surgical risks.
9. More careful nursing the first day.
10. Complete relaxation with shallow respiration facilitates intra-abdominal surgery.
11. The most immediate post-operative danger is that of respiratory obstruction from the tongue falling back.
12. The intravenous administration of any drug which cannot immediately be removed from the

system requires an effective antidote. Ephedrine and caffeine partially meet this demand.

13. The relative long period of narcosis in some instances may mask post-operative complications, such as hemorrhage.

Judging from these eighteen cases it seems that sodium amytal or some similar barbiturate will occupy a place in surgical anesthesia because of the ease with which surgical anesthesia can be produced and because it can be combined with other anesthetics.

DERMATOLOGY

By E. E. Brown, M.D.
Doctors Building, Nashville

The Instantaneous-Physiologic Cure of Eczema and Urticaria, by Thos. M. Paul, M.D., St. Joseph, Missouri, in The Urologic and Cutaneous Review, November, 1929.

In this article the author deals with treatment of eczema and urticaria by hypodermic use of expressed albumen free extract of hog spleen. He also calls attention to previous articles written by himself, and Prof. Leon von Zumbusch, of Munich, Germany. He quotes his experience on sixty-one cases, and states that hives will disappear in fifteen minutes, and that itching and oozing of eczema will cease in one half hour, and that eczematous lesion, regardless of its degree of lichenification will vanish in a few days. The extract was given in sixteen to twenty c.c. doses every other day, and rarely was more than four doses necessary. He bases the physiological action on the spleen furnishing an enzyme to the blood, which changes protrypsin from the pancreas into trypsin. This change occurs in the portal vein, which is reached through the splenic vein by the internal secretion of the pancreas. The function of the trypsin is to digest toxalbumens which have been absorbed from the intestines. On this basis he assumes that if the amount of splenic enzyme be insufficient to convert an amount of protrypsin adequate to render all the toxalbumens innocuous some of these poisons will reach the skin. Assuming this to be correct he thinks it is better to supply the wanting splenic enzyme hypodermically than to avoid the creation of toxalbumens by changing the diet, administering cathartics and intestinal antiseptic, or overcome the skin changes by means of external applications. He states the diabetic, whether his enzyme be sufficient or not, has faulty pancreatic secretion. This fact explains the diabetics proneness to pruritis and eczema, and supports the theory as stated above. The extract seems to be harmless.

OBSTETRICS

By James R. Reinberger, M.D.

416 Medical Arts Bldg., Memphis

Interstitial Pregnancy, by H. M. N. Wynne, Minneapolis, Minn. American Journal of Surgery, September, 1929.

The author discusses the general classification of tubal pregnancy dividing them into ampullar, isthmic and interstitial pregnancy, stating that the last is the least common site of tubal conception. The development may take place laterally towards the isthmus or centrally towards the uterine cavity, but he says that the majority of these cases are developed posteriorly.

After a study of ten years concerning interstitial pregnancy of all cases reported, he can only be assured that fifty cases are all that can actually be recorded.

The diagnosis has rarely been made, and not often suspected before operation, and nearly all when even suspected were those presenting signs of rupture, and carried the primary diagnosis of ruptured ectopic pregnancy. He feels that we are more justified in assuming that interstitial pregnancy is more puzzling than any of the other varieties of ectopic pregnancy. Intra-uterine pregnancy and threatened abortion associated with cornual myoma are especially difficult to differentiate, and it was interesting to note that pelvic inflammatory disease did not play a major role in the differential diagnosis. The pre-operative diagnosis depending entirely upon the history suggesting ectopic pregnancy, and the palpation of a mass in the uterine cornea.

He feels that total ammenorrhea is decidedly more common than that associated with other varieties of ectopic pregnancy. Pain has not been noted in sufficient numbers to be helpful, however Shuman and Vineberg claim that pain before rupture is located nearer the midline than in the usual type of tubal pregnancy. Pain after rupture is the same as in the other types. Signs of shock and hemorrhage are of no value in differential diagnosis.

Examination—Vaginal examination before rupture reveals a mass in the uterine horn which is firm, more or less tender, and is attached to the uterus by a broad base which extends upward and outward. After rupture, tenderness and blood clots prevent satisfactory palpation. The accurate determination of the origin of the round and the utero-ovarian ligaments and tubes is rarely possible either before or after rupture. The uterine body is said to be somewhat larger than in the usual types. The blood count is the same as other types of ectopics. The pulse and tempera-

ture are of no value in differentiating inflammatory lesions.

The diagnosis is not always clear even at operation, and microscopic examination is many times necessary to establish the presence of pregnancy as well as the exact location.

At operation the origins of the round and utero-ovarian ligaments, and of the tubes should be compared on both sides, and their relation with the pregnant horn noted, because pregnancy in a bicornated uterus, or in a rudimentary horn may easily be confused with unruptured interstitial pregnancy.

In general, the round ligaments will originate on the anterior and inferior surface of the sac somewhat lateral to the middle, while the tube will be lateral and inferior, but higher than the round ligament. The tube and the round ligament, and the utero-ovarian ligaments will be more widely separated than on the pregnant side.

Many time microscopic examination is necessary, and the following points should be determined: (1) a fetus or fetal elements must be found, (2) uterine muscle must surround the fetal membranes except at the region of the rupture, (3) there must be no connections with the uterine cavity, unless definite evidence of a rupture into it is found, and (4) the isthmus of the tube must not be involved in the sac. The absence of uterine glands and of a true deciduae in the pregnant horn, while there is a uterine deciduae in which there are no fetal elements found, eliminates an intra-uterine pregnancy, or a pregnancy in the rudimentary horn. The comparative size and lengths of the two tubes and section through the tube about the junction of the isthmial and interstitial parts will eliminate the possibility of isthmial pregnancy. The fetus usually dies, and may be absorbed. The pregnancy may become a secondary abdominal one with continued development of the fetus, but so far, no report of a living baby has been recorded, nor are there any cases recorded with a continuation of pregnancy.

Prognosis—From statistics, it is a fact that interstitial pregnancy is far more dangerous than other types of ectopic gestation.

The author has recently seen a case on the obstetrical service of the University of Tennessee, in which a diagnosis was made, of an old rupture of a tube with secondary abdominal pregnancy present, with death of the fetus at about six and a half to seven months. He did not see the operation, but the gross specimen, and at present it would seem that this was a ruptured interstitial pregnancy with the fetus lying in the abdominal cavity. Close microscopic and macroscopic studies are being made at present by the director of the service.

OPHTHALMOLOGY

By Robert J. Warner, M.D.

Doctors Building, Nashville

Report of Three Cases. (a) Sarcoma of the Iris; (b) Condyloma of the Iris; (c) Miliary Tubercle of the Iris. E. C. Ellett, M.D., Memphis. Memphis Medical Journal, August, 1929.

(a) Sarcoma of the Iris.—A young woman, age 35, had noticed a small growth on the right iris for about five years. The diagnostic points were the appearance of the growth, its slow progress, the absence of inflammatory symptoms and the presence of secondary glaucoma. The growth and some of the surrounding iris were removed by iridectomy in April, 1927. In October of that year there was evidence of a recurrence in the nasal angle of the anterior chamber. Enucleation of the eye was advised and refused. In November, 1928, a growth was seen above the cornea, apparently coming from within the eye. The eye was removed. The primary growth as well as the secondary growth were found to be spindle celled sarcomas, with slight pigmentation. No further trouble at this time.

It is considered proper to try to remove a sarcoma of the iris by iridectomy if it appears that the whole growth can be removed. If not, or at the first sign of a recurrence, the eye should be removed.

(b) Condyloma of the Iris.—A young man presented all the signs of acute iritis, with a nodular growth on the lower pupillary margin, and deposits on the posterior surface of the cornea. Wasserman four plus. Under appropriate systemic treatment, and the usual treatment for iritis, the eye was well in about a month.

(c) Miliary Tubercle of the Iris.—A married woman, age 38, was seen several times in 1922 for an inflammatory condition of the right eye, which developed into a mild iritis, and later an infiltration of the cornea. About four months after the trouble began four minute white nodules appeared on the margin of the iris. They did not cause any adhesions to the lens and disappeared in about a month. She reacted positively to tuberculin tests but was never given tuberculin treatment. There has been no recurrence and she has remained well, and has had no further trouble.

DISCUSSION

Dr. Stanford: Those of us who are interested in ophthalmology are grateful to Dr. Ellett for reporting these cases and he very wisely selected cases which must be differentiated from an another. In cases of tumors of the iris we must

differentiate between tuberculomas, cacinomas, syphilitic tumors and melanomas.

Melanomas are quite dark, do not increase in size. Sarcomas do increase in size, quite slowly as a rule, are less dark and until well advanced show no inflammatory symptoms except those that follow secondary glaucoma.

Syphilitic tumors are of course differentiated by blood tests, tuberculous by physical examination and as a rule they appear in persons under twenty-one years of age.

Dr. A. C. Lewis: Tumors of the iris are not uncommon. Their occurrence, however, is rare enough to maintain the interest of the oculist in their observation and treatment.

The three types the essayist has discussed tonight are those most frequently encountered in the practice of ophthalmology. That they are caused by three of the most common and most serious of our general diseases (tuberculosis, syphilis and cancer) is not surprising.

Differential diagnosis of tumors of the iris may be quite difficult. A nodular tumor in the iris may be a syphilitic growth, a solitary tubercle, an unpigmented sarcoma, or a cystic tumor which has formed around a foreign body imbedded in the iris or at the site of a penetrating wound of the iris. A careful search for symptoms of syphilis and tuberculosis in other organs of the body is always in order, as the iris tumors of this type are usually secondary.

Iris tuberculomata may be either multiple (miliary) or single (solitary). The iris nodules of syphilis occur in the secondary stage of the disease. Gumma of the iris is exceedingly rare and occurs of course in tertiary syphilis. These two types of iris tumor usually respond well to a combination of local and systemic treatment and require no surgical interference, although either one may lead to destruction and enucleation of the globe.

Sarcoma seldom occurs primarily in the iris. The uveal tract is frequently affected, but the tumor usually originates in the choroid or ciliary body and extends later to the iris. It may occur any time from infancy to old age. Unlike the other forms of iris tumor under discussion, it requires surgical interference. If the growth is very small and limited to the iris, it can be excised with that portion of the iris to which it is attached. But, if the growth is large and involves other parts of the eye, enucleation should be done at once. Metastases are apt to follow in any case. These are mostly found in viscera, the liver and lungs being the most common sites.

ORTHOPEDIC SURGERY

By Robert F. Patterson, M.D.

Acuff Building, Knoxville

Early Treatment of Congenital Dislocation of the Hip. Professor Vittorio Putti. *Journal Bone and Joint Surgery*, October, 1929.

The author believes that closed reduction of congenital dislocation of the hip has attained such excellence that little change in technique is to be expected. He rather thinks that progress will be attained by lowering the age limit. He disagrees strongly with those who advocate open reduction in a large number of cases.

He states that there is no reason for fixing the age for beginning treatment at two years, and believes there is no consistent reason either theoretical or practical which forbids one commencing treatment before that age. He believes that congenital hip like all other congenital deformities should be treated from birth. He states the following reasons as those given usually in advancing delay:

(1) Because it is difficult and often impossible to recognize the dislocation until the child has begun to walk;

(2) Because it is said that at one or two years of age the condition of the joint is mechanically more favorable for reduction;

(3) Because it is technically difficult to keep immobilized for many months an infant who has not yet gained control of his bodily functions.

In answer to (1) he states that some asymmetry or shortening or outward turning of the feet will usually attract attention if looked for and the x-ray will easily clear up doubt.

He states that the second objection has no justification now that one can obtain a cure without actually resorting to the manipulation of reduction.

In answer to number three—he points out that immobilization is no longer necessary and therefore we can dispense with plaster of paris. His method of treatment is as follows:

First he obtains reduction without operation by gradually forcing the limbs into a position of maximum abduction with internal rotation (2) to obtain this by suitable appliance.

This appliance consists of a triangular pad or pillow as wide as the patient's legs which fits in between the abducted limbs which are snugly strapped to it by a series of buckles and straps attached to the edges of the pad. This is covered with rubber tissue and is removed whenever necessary for cleansing. Abduction is increased

by splitting the pillow from the apex to middle of the base, spreading it and filling in the triangle.

He reported twenty-four cases treated this way with entire success during the duration of treatment—being from eight to twelve months.

OTOLOGY, LARYNGOLOGY, RHINOLOGY

By W. G. Kennon, M.D.

Doctors' Building, Nashville

Nerve Block in Amygdalectomy. Homer A. Trotter. *Annals of Otology, Rhinology, and Laryngology* 38:376, 1929.

Post operative pain following enucleation of the tonsils is very distressing and its elimination or amelioration would be of great comfort to both the patient and surgeon.

The author states that post operative pain can be eliminated by nerve block into the nerve supply of the tonsil if proper technique is adopted.

He reports having operated upon 126 patients by this method, with satisfactory results. The nerve supply to the tonsil is from the posterior palatine and branches of the glosso-pharyngeal nerves. These nerves converge and run side by side as they approach the tonsil, and are in close relation with the tonsillo-pharyngeus muscle. This muscle is attached to the groove at the junction of the middle and lower third of the tonsil. It holds the tonsil in position and is accompanied by the nerve, blood and lymphatic supply of the tonsil. Injection of a local anaesthetic into the tonsillo-pharyngeus area will produce a nerve block, because at this point the two nerves are parallel. At no other point can nerve block be accomplished by a single injection.

Quinine and Urea Hydrochloride solution is the anesthetic employed by the author, as it produces a much more prolonged anaesthesia than does procaine hydrochloride, the effects sometimes lasting as long as eight days. The technique advocated consists in placing the patient in the upright position and painting the throat and tongue with cocain hydrochlorid (flakes). No preoperative narcotic is employed. A specially built non-flexible canula needle, (23 gauge), with three-fourth inch penetrating depth, is required. One cubic centimeter of 0.5 per cent solution of quinine and urea hydrochloride is injected back of the capsule of each tonsil in the region of the tonsillo-pharyngeus muscle, the needle piercing the lower one-third of the palatoglossus muscle near its median line. The needle then enters a space filled with areolar tissue and comes in contact with the tonsillar capsule. The capsule is followed until resistance is met, this resistance is due to the tonsillo-pharyngeus muscle. Injection is made into this muscle to produce nerve block.

Complete anaesthesia is obtained after fifteen minutes. The tonsils are then enucleated by the dissection and snare method.

Among the advantages claimed are that healing is more rapid as the disturbance of the nutrient equilibrium is interfered with to only a slight degree. Post operative discomfort is eliminated. He has experienced no irritating action on the tissue.

In the series reported there was no sloughing in any case.

PEDIATRICS

By John M. Lee, M.D.

Doctors Building, Nashville

The Control of Scarlet Fever. George F. Dick and Gladys H. Dick. *Amer. Jour. Dis. Children.* Nov., 1929.

Six years ago the authors reported the hemolytic streptococcus and its toxin as the cause of scarlet fever. This led to the development of the following means of control of the disease: (1) a method of identifying scarlet fever streptococci; (2) the control of quarantine by means of cultures of material from the nose and throat, made on blood agar plates; (3) a skin test for determining susceptibility to scarlet fever; (4) a method of active immunization of susceptible persons, and (5) an antitoxin specific for scarlet fever for use in the treatment of patients and in the prevention of the disease.

Faulty technic in applying the skin test for susceptibility to scarlet fever has led to many errors. Among those encountered are, inadequate syringes and needles, sterilizing needles and syringes in alcohol or tap water instead of distilled water, failure to rinse out water left in needle after boiling by expelling small amount skin test solution through each fresh needle, subcutaneous instead of intracutaneous injection. Skin reactions to scarlet fever toxin never show induration. The slightest reddening, no matter how faint, constitutes a positive reaction, if it measures ten mm in any diameter. This must be observed between eighteen and twenty-four hours after injection. Of 20,856 persons showing negative skin tests who passed through one or more epidemics of scarlet fever all escaped the disease except one boy who had a sore throat and desquamation on the feet.

The incidence on natural immunity and degrees of susceptibility and immunity are discussed. In 12,775 susceptible persons immunized with graduated doses of sterile toxin, no injuries resulted. General reactions occur in about ten per cent of cases. The skin test does not become negative after the use of ricinoleated preparations, and reactions are more severe. -

Active immunization is conferred by the subcutaneous injection of five doses of sterile toxin, giving a dose each week, beginning with 500 skin test doses and increasing to 80,000 or 100,000 skin test doses in the last. This will immunize ninety-five per cent of susceptible persons. If a skin test is positive two weeks after the last injection, the fifth dose is repeated. More than ninety per cent retested one, two, and three years after receiving these injections were still immune. From five to nine per cent require a second immunization.

The giving of scarlet fever antitoxin to all in contact with a case is not justifiable. Should symptoms develop a therapeutic dose of antitoxin should be given. If skin tests for susceptibility and throat cultures for infection can be made, the susceptible persons may be given active immunization and those infected should be given a prophylactic dose of antitoxin.

It is advised that adequate doses of scarlet fever antitoxin be given for treatment of every case as soon as the diagnosis can be made. The earlier it is given, the better the results. Do not wait to determine if the case is to be mild or severe, but give antitoxin in time to prevent the case becoming severe. European antitoxin is much weaker than that manufactured in America. In a group treated with antitoxin compared with a group of cases that did not receive antitoxin, mastoiditis occurred three times as frequently, nephritis appeared four times as frequently, and the death rate was doubled in the cases that did not receive scarlet fever antitoxin.

SURGERY — GENERAL AND ABDOMINAL

By John L. Dies, M.D.

1213 Exchange Building, Memphis

Differential Diagnosis of Pain in the Right Side of the Abdomen. With particular reference to Urologic Lesions. Oswald Swinney Lowsley, M.D., and Francis Patton Twinem, M.D., New York. *The Journal of the American Medical Association*, Vol. 93, No. 21. Nov., 1929. Pg. 1614 to 1619.

Pain in the right upper quadrant of the abdomen may be due to various lesions of the liver, pyloric end of the stomach, gallbladder, duodenum, right kidney, colon and appendix. The pancreas, too, occasionally gives rise to pain in this area. As causes of acute pain in the right lower quadrant there are acute appendicitis, salpingitis, distention of the cecum with gas, right ureteral calculus, twisted pedicle of a right ovarian cyst, acute ureteritis, lead colic, pelvic abscess, retained right testis, periostitis of the ilium, and local injury. As the more common

causes of subacute or chronic pain in the right lower quadrant one may mention most of the pathologic conditions enumerated in the preceding sentence and in addition movable right kidney, tuberculosis of the right kidney and ureter, carcinoma of the cecum, ulcerative colitis, aneurysm of the right iliac artery, iliocecal kink, periapendicular adhesions, pericecal adhesions, psoas abscess, sacro-iliac joint disease, tuberculosis of the hip, inflamed or tuberculous iliac lymphatic glands, intestinal obstruction from any cause, obturator hernia, herpes zoster, angioneurotic edema, infective arthritis and osteoarthritis of the lumbar vertebrae, dysentery, typhoid and sarcoma, osteoma or chondroma of the iliac bone. It should also be borne in mind that not infrequently lobar pneumonia, pleurisy or other chest conditions may be the source of pain referred to the abdomen.

There were more females than males in this series of cases, although we see about five times as many women in our various clinics.

The ages of the women varied from sixteen to seventy-four, with an average of 37.75 years, the men showed about the same variation, sixteen to seventy-six, with an average of 35.41 years.

More than fifty per cent of the patients studied in this series were incorrectly supposed to have simple chronic appendicitis or appendicitis with some other intra-abdominal inflammation.

Of the entire eighty-four patients thirty-nine or 47.5 per cent had previously undergone some major operation without relief of symptoms. Fifty-one of the patients were cured or relieved of their disease or discomfort by palliative means such as the application of an abdominal bandage with proper kidney pads, dilation of the ureter for the relief of stricture of calculus or both, drainage of pyelitis by means of the indwelling ureteral catheter, renal pelvic lavage, administration of urinary antiseptics and other appropriate treatment.

They were obliged to operate in thirty-two cases, as follows: Eighteen nephrectomies; seven pyelotomies; three nephrotomies; three nephropexies, and one ureterotomy.

One patient refused to have a tuberculous kidney removed and is being treated by palliative means in our special clinic for the care of post-operative and inoperative tuberculosis of the urinary organs.

Occasionally patients are sent with a diagnosis of urinary disease who are found by a process of elimination to be suffering from some extra-urinary lesion.

One cannot help but be impressed by the large number of serious kidney and ureteral diseases, that are overlooked in the enthusiasm of the medical advisers to remove the appendix or some other organ from the right side.

The lesson to be learned from this study is that

when there is any indefinite pain in the right loin the patient is entitled to cystoscopy, and pyelography in order to obtain a correct diagnosis or eliminate the right upper urinary tract.

The surgical divisions in our hospital now send all cases of so-called chronic appendicitis and cholelithiasis for a urologic examination before operation.

UROLOGY

By Tom R. Barry, M.D., F.A.C.S.,

and F. K. Garvey, M.D.

Medical Building, Knoxville

Tuberculosis of the Kidney. Beer, E. J. Am. M. Ass., 1929, xcii, 1912.

Beer reviews 300 cases of renal tuberculosis seen in a period of thirty years. The condition is surgical when it is limited to one kidney. The most characteristic symptoms are urgency, frequency, and burning with pyuria and hematuria. In every case of persistent pyuria a cultural study should be made. Renal tuberculosis is most common between the ages of twenty and forty years.

In some cases, tuberculosis of the kidney may simulate nephrolithiasis by causing colicky pain in the kidney with bleeding. In another group it may suggest neoplasm, but the hemorrhage is more marked. A confusing type of case is one with persistent unexplainable pyuria but without suggestive renal symptoms.

As a rule the general health is not impaired early, but the patient gradually loses weight from nocturia and loss of sleep, and death results after from one to two years. The diagnosis is made by the cystoscopic examination and the finding of the tubercle bacillus.

Cystitis secondary to renal tuberculosis is characterized by hyperaemia, hemorrhagic spots, edema of the ureteral orifices, and the presence of tubercles and overhanging ulcers. Strictures form readily in tuberculous ureters.

Cystography and pyelography are at best only of corroborative value. In some cases an exploratory operation may be found necessary for a positive diagnosis.

Nephrectomy with removal of the upper part of the ureter is absolutely indicated in all unilateral cases. When pulmonary tuberculosis is present, the operation should be performed under spinal anesthesia. After the operation the patient must receive good care and must be kept under observation.

Dislocation of the Testes. Alyea, Edwin P., M.D., Baltimore. S. G. & O., Nov., 1929. Vol. xlv, No. 9.

Only traumatic dislocation is dealt with in this paper. The condition is rare and Alyea finds re-

ported in the literature only twenty-three original cases. To these he adds two cases from his own observation.

The condition is always brought about by trauma, and the resultant position of the testicle, which varies considerably, is dependent on three factors.

1. Anatomical abnormalities.

2. Obstruction to dislocation in particular directions.

3. The direction and force of blow.

There are three groups of cases:

1. Internal where the testis passes through the inguinal ring into the canal. This comprises the femoral, inguinal canal, and abdominal.

2. Superficial where it is only subcutaneous. Of this, there are five different types: pubic, superficial inguinal, penile, perineal, and crural.

3. Compound dislocation in which there is always a tear in the scrotum with extrusion of the testicle and part of the cord.

Of the first group there were three cases all of which were the inguinal type. No femoral or abdominal. In the second or subcutaneous group there was seventeen cases. Five were inguinal, six were pubic, three penile, and two perineal.

In the third group there were three cases.

In the etiology, being of course trauma, nine of the twenty-three were caused by crushing by a wagon wheel running over the scrotum and inguinal region. The other fourteen were crushing injuries with scrotal damage.

The symptoms are: Immediate shock with nausea and vomiting, and severe local pain.

The signs of dislocation are usually obscured by swelling, hemorrhage, and pain. After swelling is gone the testis is located or found absent from scrotum.

The diagnosis therefore is easy.

The treatment consists of closed reduction if possible and open if not.

The prognosis is good and results satisfactory.

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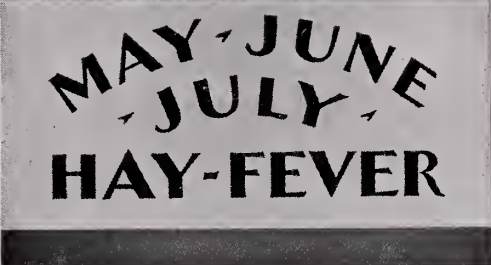
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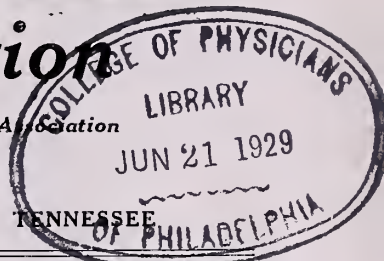
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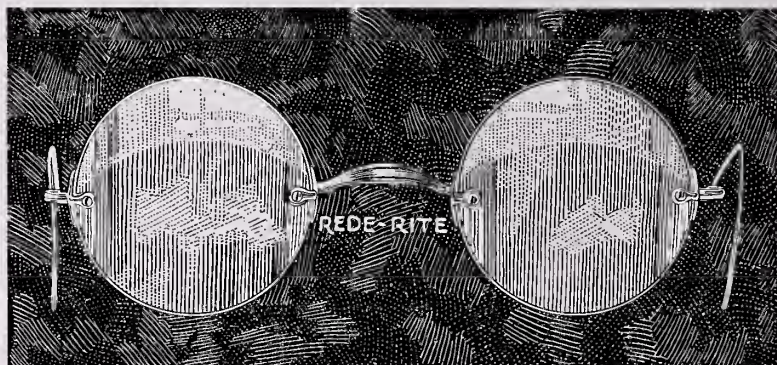
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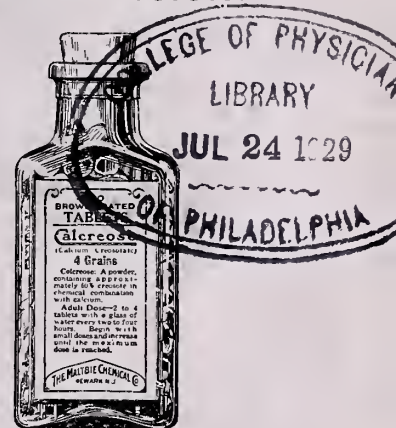
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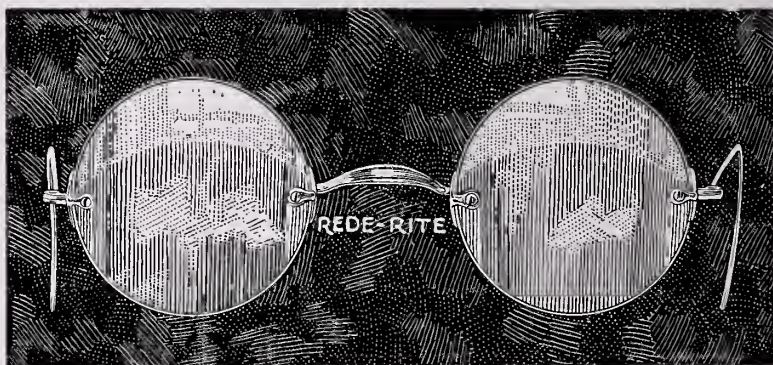
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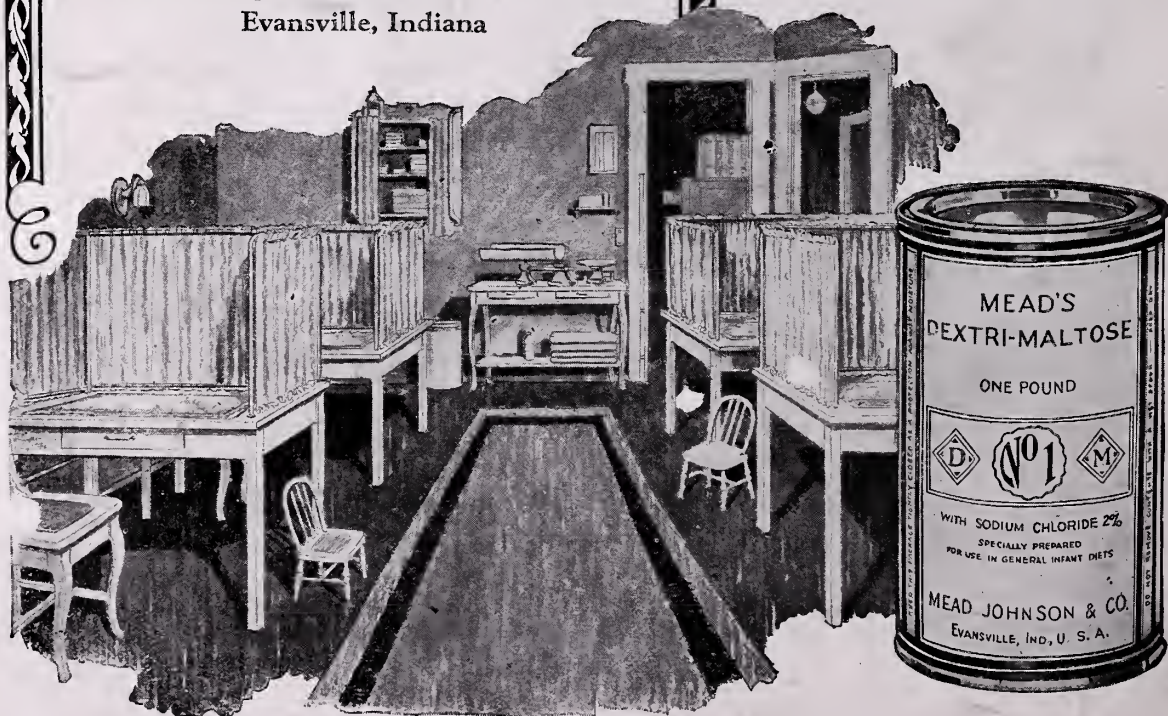
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H. H. SHOULDERS, M.D., Secretary and Editor

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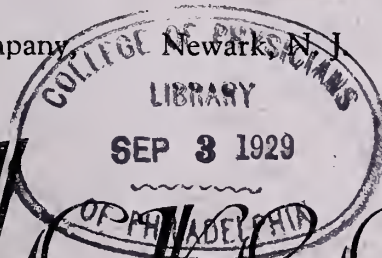
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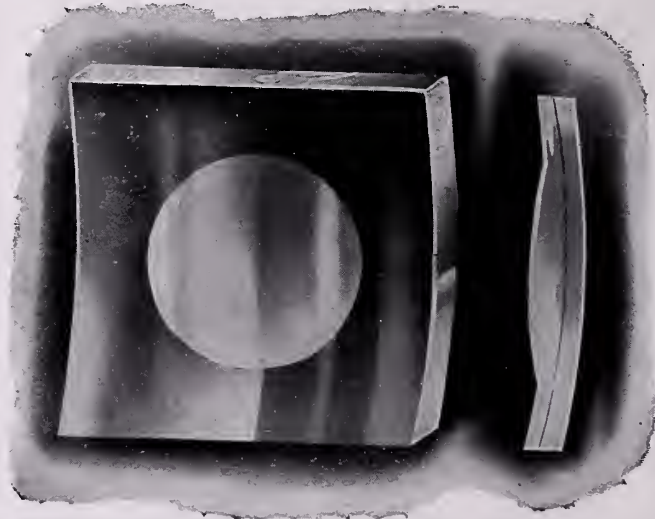
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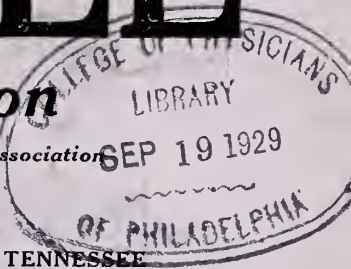
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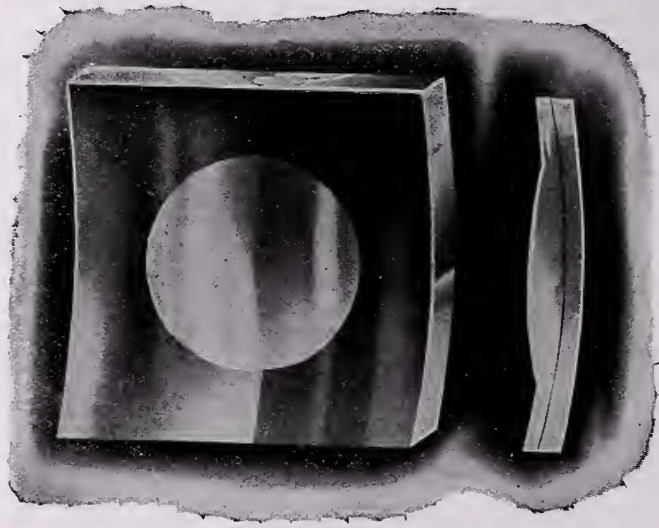
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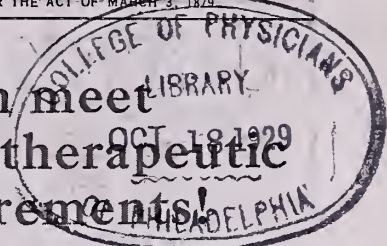
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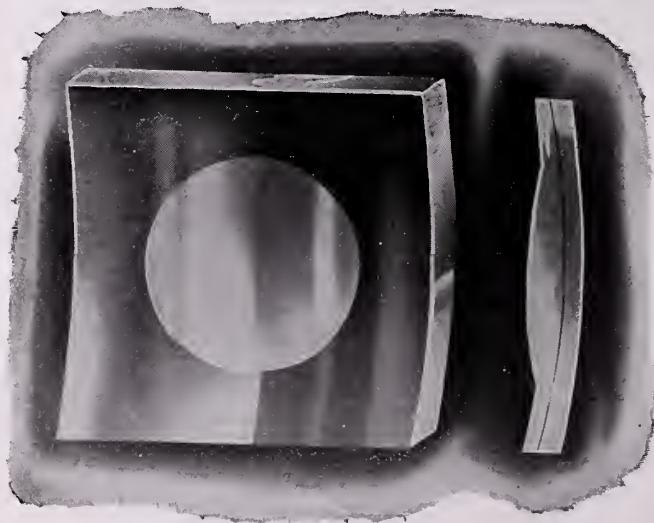
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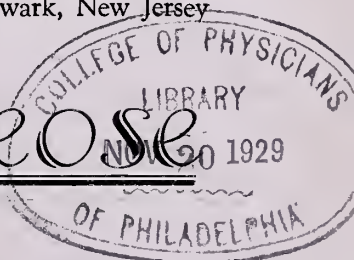
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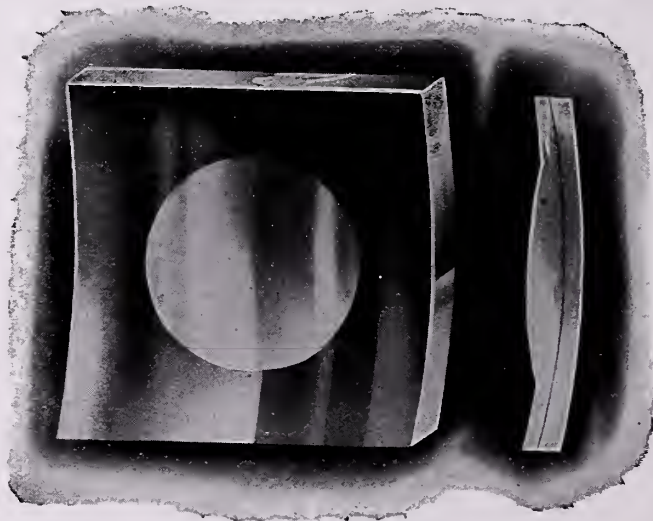
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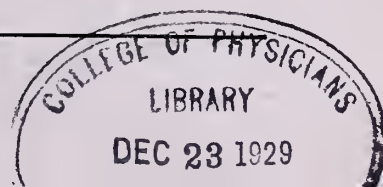
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FOR NERVOUS AND MENTAL DISEASES AND SELECTED CASES OF ADDICTION

Hill Crest Sanitarium is ideally located on the crest of Higdon Hill, on the proposed Scenic Highway overlooking the city. All modern conveniences. Separate building for convalescent women patients. Several acres of well-shaded lawn. Adequate nursing service maintained.

JAS. A. BECTON, M.D., Physician in Charge

P. O. Box 96, Woodlawn, Birmingham, Ala.
Phone Woodlawn 1200

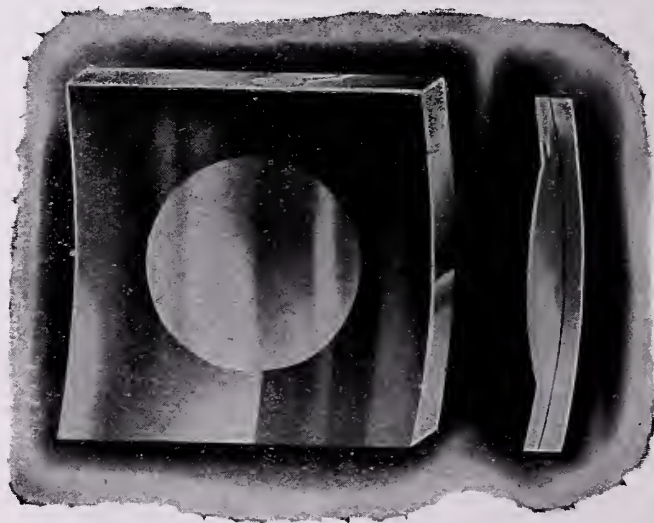
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Optically Effective for Post-Cataract Cases

. . . Users of Ultex Cataract Lenses are delighted with its optical efficiency, splendid appearance, and light weight. Optically, these lenses are a plus lenticular surface 28 mm. in diameter, ground on the occult side of 4.00, 6.00, and 8.00 base blanks.

. . . Because of being finished on a convex surface, the same as are Ultex One-Piece Bifocals, unnecessary weight is avoided, thus permitting the grinding of a lens that has the handsome appearance of an ordinary toric, yet its field is as large and effective as that in any other type of cataract lens. Ultex Cataract Lenses are a true scientific correction successfully used for post-cataract cases.



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EVERY PHYSICIAN should be familiar with these two SQUIBB ANTITOXINS

Erysipelas Streptococcus Antitoxin Squibb

As erysipelas antitoxin is being more and more widely used its value in erysipelas is being recognized.

ERYSIPELAS STREPTOCOCCUS ANTITOXIN SQUIBB is accepted by the Council on Pharmacy and Chemistry of the American Medical Association. It is prepared according to the principles developed by Dr. Konrad E. Birkhaug. Its early administration ensures a prompt reduction in temperature and toxicosis, clearing the lesions and effecting uncomplicated recovery.

ERYSIPELAS STREPTOCOCCUS ANTITOXIN SQUIBB is distributed only in concentrated form in syringes containing one average therapeutic dose.

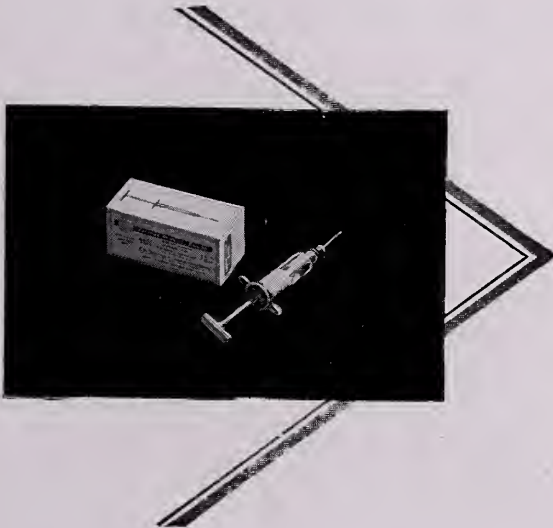


Tetanus Antitoxin Squibb

Every wound in which skin continuity is destroyed is a possible route of tetanus infection. Just as routine practice of injecting anti-tetanic serum during the World War practically eradicated tetanus so in civil practice this disease might be stamped out by the same routine practice.

TETANUS ANTITOXIN SQUIBB is small in bulk, high in potency, low in total solids, yet of a fluidity that permits rapid absorption. It is remarkably free from serum-reaction producing proteins.

TETANUS ANTITOXIN SQUIBB is supplied in vials or syringes containing an immunizing dose of 1500 units. Curative doses are marketed in syringes containing 3,000, 5,000, 10,000 and 20,000 units.



(Write to the Professional Service Department for Literature)

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MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858.



Nine out of ten mothers can give their babies the breast. What can the physician tell these mothers who want to wean their babies before they nurse them?

Types of Mothers and Their Infant-Feeding Problems

1. The Business-Going Mother

"Doctor, I will have to give up nursing my baby. Our expenses have been very heavy lately and I must go back to business. My position is open for me provided I go back next week."

"Of course, you know, Mrs. Rush, that breast milk is best for your baby. In every way, it is far ahead of the best formula. It is free from bacteria and

dirt, it never sours, it is always correct in temperature, and quicker as well as cheaper than bottles. I haven't much respect for the mother who won't nurse her baby. Your case is perhaps more excusable, for at least you have nursed your baby up to the point where the economic shoe is pinching pretty tight."

Doctor, in situations like this, where extenuating circumstances make artificial feeding necessary, we hope you will consider Mead's Dextrin-Maltose modification as the next-best-to-mother's-milk infant food. We hope you will be influenced in its choice, not only because of its long clinical background, but because of the ethical character of its makers.



